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THE CAUSES AND TREATMENT OF CHRONIC BACKACHE

WITH A CONSIDERATION OF THE DIAGNOSIS OF SACRO-ILIAC "RELAXATION"

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That chronic backache, or chronic lameness in the back, is a frequent occurrence is a matter of common information to the medical profession, to the laity and to the manufacturers of patent medicines. The laity, as a rule, attributes such backache to "kidney disease" in men, and to that or to uterine disease in women. The writings of the medical profession on the subject have not led to a clearing up of the matter, and many confusing statements are to be found.

The more common of the various names given to this symptom-group are a sufficient comment on the situation. They are as follows: neurasthenic spine, hysteric or irritable or railroad spine, chronic lumbago, uterine backache, static backache, relaxation of the sacro-iliac joint, sacro-iliac strain, rheumatism of the spine, chronic back-strain, etc.

It seems permissible, therefore, to make an attempt to present what facts are obtainable bearing on the etiology and pathology of the symptom-group, although the results of any classification not based on post-mortem findings must always be unsatisfactory.

In this consideration tuberculosis of the spine, organic nervous disease and the results of spinal fracture are omitted.

SYMPTOMS

The routine symptoms of the affection will best identify it, and may therefore be presented in outline at this point. The most important are an insistent or intermittent dragging, or more or less acute pain most often in the lower part of the spine, sometimes unilateral, sometimes bilateral, generally aggravated by standing or walking, and often shooting down into the buttocks and the backs of the thighs. Lameness in bending may be present. Tenderness is generally to be found over the lower lumbar region, and particularly over the region of the sacro-iliac joints. When the patient lies or sits she prefers to have the small of the back supported by a cushion. The affection may have begun slowly, or sharply with a catch in the back. Coccygodynia is not an unusual symptom. It is more common in women than in men, and is most common in three types of figure: (1) the flat-backed, round-shouldered type (the gorilla type of Dickinson and Truslow[1]), (2) the type with prominent buttocks and a sharp lumbosacral forward curve (the overfeminine type of Reynolds[2] and the kangaroo type of Dickinson and Truslow) and (3) cases with slight lateral curvature. As a whole the resistance of these patients is less than the average; many of them are neurasthenic, and the affection is notoriously chronic. It may vary from a slight backache occurring after exertion, to a degree which makes the patient an invalid.

FUNDAMENTAL CONSIDERATIONS

Certain fundamental facts lying at the root of the problem under consideration are as follows:

1. We are studying the painful condition of an upright, jointed, weight-bearing column, supported in unstable equilibrium on the pelvis, to which it is attached by the sacro-iliac joints. This column bends more easily to the front and back than to the side, and the upright position is maintained by muscular effort. Since the upright position of the body is maintained in balance by muscular effort, and since in general muscles in their size are proportionate to the demand on them, one may obtain information as to the balance of the body by comparing the size of the muscles at the front and back of the body. The gastrocnemius is much larger than the anterior leg muscles, whereas in the thigh the anterior muscles are developed to hold the knees extended in standing, so that anterior and posterior muscles possess about the same diameter. At the level of the pelvis, however, the great gluteal muscles have practically no anterior antagonists, and the erector spinae muscles are much heavier than the anterior abdominal muscles. The body, therefore, is to be regarded as balanced against an anterior load, as the posterior muscles are much heavier than are the anterior. That the body of the cadaver falls forward if placed erect with the knees prevented from flexing is well known.

2. The sacro-iliac joints transmit the weight of the spine to the pelvis and thence to the legs. They are ear-shaped articular surfaces of irregular contour, in general vertical in direction, containing some synovial membrane and heavy ligamentous bands. That they permit some motion is well established, but this amount of motion is small. Klein[3] found that 25 kg. of force applied to the symphysis with the sacrum fixed produced a rotation of the ilia on the sacrum, which on the average, measured by the excursion of the symphysis, was 3.9 mm. in man and 5.8 mm. in

1. Dickinson, R. L., and Truslow, Walter: Averages in Attitude and Trunk Development in Women and Their Relation to Pain, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2128.
2. Reynolds, Edward: The Etiology of the Ptoses and Their Relation to Neurasthenia, THE JOURNAL A. M. A., Dec. 3, 1910, p. 1943.
3. Klein: Ztschr. f. Geburt. u. Gynäk., 1891, xxi. Walcher: Verhandl. d. deutsch. Geselisch. f. Gynäk., Bonn, 1891. Strasser: Lehrbuch der Muskel und Gelenk Mechanik, Berlin, 1913. Dieulafé and St. Martin, C. R.: Assn. d. Anat., 14 Reunion Revues, 1912.

woman. Measured at the sacro-iliac joint this excursion was about one-sixth of this amount; that is, in man the average amount of motion in the sacro-iliac joint, measured at the posterior part of the joint, was about 0.6 mm. These joints are protected against much motion by intra- and extra-articular ligaments of the heaviest variety. In front of them lie the lumbosacral cord and sacral plexus.

3. The spinal column itself is an intricate structure of vertebrae in contact with each other by two intervertebral articular surfaces and by four articular surfaces on the transverse processes, with of course two additional articulating surfaces for ribs in each vertebra in the dorsal region. The ligaments connecting the vertebrae are heavy and stronger on the posterior than on the anterior aspect. Here then we have a structure with about one hundred articulations and with intricate and firmly attached ligaments.

VARIETIES

Having investigated these fundamental considerations, we come to the investigation of the causes of chronic backache. We can identify clinically three etiologic classes about which there is no reasonable doubt.

1. Disease or displacement of the pelvic organs is universally recognized as one cause. Whether this is due to a direct reflex influence, or because the patient is inclined to assume a forward bent position to ease tender pelvic organs[2] and thus incur muscular back-strain, is not certain, although the clinical evidence would seem to favor the latter. It is often the case that in cases clearly of pelvic origin a successful operation fails to relieve the pain in the back until treatment addressed to the static side of the case is subsequently added.

2. Traumatism to the back is frequently followed by chronic backache, and a traumatic class is generally accepted. The spine with its hundred joints and complex ligamentous support is as likely to be sprained as is any other joint, and from the difficulty of fixation of the spine such sprains are as a rule imperfectly treated, and a condition of chronic irritability is likely to arise similar to what we class as chronic sprain in the ankle and knee.

3. Finally, arthritis of the spine is a painful condition universally admitted. It may be the outcome of trauma or it may arise so far as we know spontaneously. It may exist in connection with arthritis elsewhere, or it may exist alone. It may be mild or severe and occurs most often at or after middle life.

But these classes, distinct as they may appear in a theoretical classification, are not always so clearly to be identified in practice, and many cases are seen which must be recognized as a mixture of these classes or as a mixture of one of these varieties with the group next to be taken up.

Having defined and set aside cases belonging to these three divisions we have still left unclassified what in private practice in the United States constitutes a fair proportion of the cases (forty-one out of eighty-three cases in the personal series to be presented). With regard to the cause of these cases there are two points of view: (1) that they are largely static in origin, that is, due to overstrain of the posterior musculature, and that the pain is due to irritation of muscles, ligaments and fasciae, and (2) that many of them at least are due to a specific strain or relaxation of the sacro-iliac joint or joints. It is necessary therefore before proceeding further to examine the evidence for and against these theories, so far as may be done under the conditions.

THEORY OF STATIC ORIGIN

To consider first the theory of static origin: In a paper by Reynolds and Lovett[4] the conclusion was reached that backache of this character was caused by a forward displacement of the center of gravity of the body, causing undue strain of the posterior musculature of the body, and that this muscular strain was expressed as pain in the muscles and ligaments of the back, so that this type of backache was to be regarded as a symptom-complex due to abnormal attitude induced by peculiarities of the skeleton, lack of proper muscular balance or abnormal conditions in the abdomen.

The pain in the buttocks and back of the thighs is to be explained by the fact that the posterior musculature of the body is more or less continuous, and that the posterior irritation may be expressed as pain below as well as above the pelvis. This is, moreover, the reason that in such cases it is generally painful when lying on the back to have the leg flexed with the knee straight, which immediately pulls on irritable and overstrained posterior muscles.

Such a condition of pain and irritability would *a priori* be expected to occur in persons of diminished resistance or peculiar figures from continued strain of the posterior ligaments, fasciae and muscles of the back, and pain and tenderness in the neighborhood of the sacro-iliac joints occur, because here the erector spinae muscles have their origin, and pain at muscular origins and insertions is not unusual under conditions of prolonged muscular strain, as in flat-foot.

SACRO-ILIAC STRAIN

Given the conditions of such struggle against an anterior load, the result of attitudinal strain, it is not unlikely that in some cases the sacro-iliac joints may share in the process and become the seat of an irritation properly to be spoken of as a strain, and the same is very likely true of the integral joints of the spine. But to assume that there is a specific entity to be classed as sacro-iliac strain seems hardly warranted by the evidence, because all the symptoms attributed to it are more reasonably to be explained by a general attitudinal strain in which tenderness over the sacro-iliac joint or joints may be due just as well to muscular and ligamentous irritation as to joint-strain, and secondly, because the treatment to be described — a treatment generally successful — is addressed to the correction of attitudinal strain and not to the relief of a specific sacro-iliac strain.

SACRO-ILIAC RELAXATION

The assumption of a real sacro-iliac relaxation or subluxation lays itself open to a more definite line of proof or disproof, and that such an assumption is seriously made is shown, for example, in an article by Meisenbach[5] analyzing 84 cases of "sacro-iliac relaxation." A quotation from this article will represent the point of view:

> It is now beginning to be recognized that almost all of the sciaticas are due to sacro-iliac relaxation. . . . The lumbar and sacral cords are closely related to the sacro-iliac

5. Surg., Gynec. and Obst., May, 1911, p. 411.

joint. . . . The symptoms produced by any irregularity of the sacro-iliac joints depend on the pressure of the nerves involved and their distribution.

It is self-evident that a displacement of this joint severe enough to press on the nerve-trunks lying loosely in front of it must be evident to roentgenoscopy, yet — I quote again from Meisenbach — "Heretofore to my knowledge no x-ray has been published showing a dislocated or strained sacro-iliac synchrondrosis,"[6] and one has only to compare the roentgenogram of the "open" sacro-iliac (Fig. 4) of the article with the normal one shown on the opposite page (Fig. 3) to see that no evidence has in that instance been offered. In a case of Meisenbach's (Case 40) "movable sacrum" was diagnosticated by him, the symptoms being occipital headache and pain in the shoulder, the neck symptoms being attributed to "referred muscular spasms radiating from the sacrum."

In an examination of the roentgenograms taken of the eighty-three cases in my series (to be reported later) in no one was there the slightest evidence of any disturbance of relation in the joint. Post-mortem and dissecting-room evidence that this condition exists, except in connection with pregnancy and very severe or crushing trauma is so far as I know wanting.[7]

In Case 84 of Meisenbach's series a pathologic examination was made, as the patient died later of tuberculosis. The symptoms had been pain in the dorsal spine and legs following childbirth. At necropsy "some motion, but not marked, was noted." The joints were then sawed through, and by moving the ilia on each other the joints were observed to move "slightly." These findings are practically identical with those obtained in ordinary dissecting-room specimens.

The symptoms ordinarily described as characteristic of sacro-iliac relaxation are so far as I know identical with those detailed earlier in this paper, except that "slipping" of the joint is said to be felt when the patient stands, for example, on one leg and flexes the other and the surgeon holds one hand on the joint and the other over the pubis, or by manipulating the crests of the ilia with one hand on each, or by forced hyperextension of the thigh with the hand over the joint.

In my series of eighty-three cases, all examined carefully in this regard, I have failed to find any suggestion of such slipping or displacement or abnormal motion. It may be that my fingers are not sufficiently trained, but I have heard many of my colleagues confess to a similar disability. Again, in the one case seen by me in the last three years in which I believe that there did exist some slight degree of sacro-iliac displacement (Case 12), the symptoms were of a wholly different character from those described above, and were practically those of tuberculosis of the sacro-iliac joint, a peculiar sidling gait, great pain in walking and an inability to lift either leg properly in walking, with a feeling of instability.

The treatment afforded to cases of "sacro-iliac relaxation" not occurring in pregnancy, and the relief afforded by such treatment, as reported, is of itself the best evidence as to the incorrectness of the diagnosis. We have supposedly a relaxed or subluxated great joint, which bears at every step the whole weight of the body. The plane of this joint and the line of thrust on it are practically the same, that is, every step tends to thrust one joint surface along the face of the other. No joint in the body once relaxed could be so unfavorably situated for recovery while the patient is going about. Yet I quote from another author[8] to show the treatment generally in vogue and the mechanics on which it is based:

> A wide belt made of webbing 9 inches wide, extending from the trochanters up to the crests of the ilia, and encircling the pelvis and buckling in front, gives great relief by *immobilizing* the joint.

Again:

> In mild cases with a movable sacrum, high-heeled shoes may be all that is necessary (Meisenbach).
>
> In the acute cases an adhesive plaster strapping is applied to the back *to hold the joints together* until a properly fitting belt can be made.[9]
>
> Locally the entire principle of treatment concerns ways and means of *holding these joints together*. In the most severe it may be necessary to use a plaster spica or corset. Various other forms of *retention* apparatus are in use, and in some instances simply wearing a pair of closely fitting elastic silk trunks is sufficient. If it is desired simply to provide *immobilization* for a few days . . . one may strap the pelvic girdle firmly with adhesive plaster.[10]

Plaster jackets and braces of one kind and another to secure lumbar lordosis or pressure on the sacrum are also advocated.

The upshot of all this is that we are asked to believe that a pair of elastic silk trunks, strips of adhesive plaster on the skin, a webbing belt or even a plaster-of-Paris jacket will jam together sufficiently firmly to prevent their slipping by each other, these "relaxed" sacro-iliac joints. These joints, which must bear at each step a downward sliding thrust of from 75 to 125 pounds, are deeply embedded, so far as lateral pressure goes, in great masses of fat and muscle, and we are asked to believe that straps of adhesive plaster on the movable skin will "immobilize" them, that is, prevent them from slipping on each other. Here one must apply the simplest rudiments of physics and an elementary knowledge of anatomy and decide according to his individual habit of mind whether or not "slipping" of the sacro-iliac joint is likely to be prevented by these measures.

Contrasting the two theories then, we must recognize that the static cannot be proved or disproved by the Roentgen-ray or pathologic evidence; that sacro-iliac relaxation can be proved in this way, but that such proof is as yet lacking; that the symptoms described fit the static theory, and that the treatment advocated could easily afford relief in certain static cases by affording an annular ligament to the glutei muscles which hold the trunk erect on the legs, for the blacksmith straps up the muscles of his forearm before starting on heavy work; but it is not possible that the apparatus advocated can have the slightest effect in immobilizing a "slipping" sacro-iliac joint. That sacro-iliac strain may exist in connection with general attitudinal strain seems probable, but that sacro-iliac relaxation is a common cause of chronic backache is apparently still to be demonstrated.

The diagnosis of sacro-iliac "trouble" or "dislocation," "relaxation" or "displacement" is at present a very popular one, and eminently satisfactory to the

6. Meisenbach: Monatschr. f. Unfallheilk., 1909, No. 3 (giving an account of eight cases of traumatic luxations).
7. Grimbach: Deutsch. Ztschr. f. Chir., October, 1908.
8. Pitfield: Am. Jour. Med. Sc., June, 1911.
9. Morrill: Cleveland Med. Jour., October, 1910.
10. Swett: Yale Med. Jour., October, 1908.

patient, because it seems serious and unusual, and equally satisfactory to many general practitioners because it seems explanatory. Its adoption demands no etiologic study and only a routine treatment. The diagnosis of "static backache," on the other hand, means that the careful surgeon must look into the cause of it and try to remove this before proceeding to treatment. It is significant that the sacro-iliac diagnosis is but little heard of or discussed in Europe, and that foreign literature on the subject is practically lacking.

The etiology and classification of cases having thus been defined, it becomes important to consider how these theoretical considerations work out in practice, and especially in the treatment of the different groups.

I. BACKACHE OF PELVIC ORIGIN

Pelvic backache, so far as the back itself is concerned, possesses no definite characteristics to distinguish it from backache of static origin, and mixed forms are frequent. In general, pelvic backache is sacral, but may be dorsal, and is generally associated with a history of symptoms pointing to pelvic disturbance. This similarity of back symptoms in static and pelvic cases tends to support the theory that pelvic backaches are most often caused by the forward bent position mentioned above.[11]

II. BACKACHE FOLLOWING TRAUMATISM

In the history of many cases of chronic backache a traumatism in former years of mild or severe nature is to be found. Many of these cases without this history would have to be classed as probably due to defective balance, but the history of a trauma or overstrain in the past makes it doubtful if they belong to that class. Cases of postoperative backache apparently belong in this class.

A very puzzling class of cases lies between the divisions of those associated with trauma and those clearly arthritic. In the acute stage even if they have a traumatic history they are not always to be distinguished from each other, but the recovery of motion under treatment in a few months, of cases apparently arthritic, leads to the belief that they could not have been due to arthritis of any degree, and it seems better to regard them as analogous to the stiff and painful feet resulting from trauma which are spoken of as "chronic sprains," and which also in their acute stage cannot be clearly differentiated from arthritis at the outset.

III. FORMS DUE TO ARTHRITIS

The recognized symptoms of arthritis of the spine are stiffness and lateral deviation of the spine, pain in the back and legs often classed as "sciatica," a loss of the lumbar curve, and in the severer cases localized disturbances of sensation in definite areas in the legs, and sometimes even some loss of motion in some muscles. The leg pains are to be attributed to nerve-root pressure, and the anatomic distribution of the pain and sensitiveness often shows nerve-root pressure rather than an involvement of the whole sciatic nerve. Pain is noticeable on movement, and a "catch" in making some slight movement frequently occurs at the onset, and often in the course of the affection. A history of recurrent "lumbago" is frequent.

11. Cases illustrating backache of pelvic, traumatic and arthritic origin are omitted in this place for the sake of brevity. Complete reports of these cases will be given in the author's reprints.

Roentgenoscopy reveals in some cases the presence of osteophytes in the vertebrae, and "lipping" or overgrowth of the vertebral edges; but in other cases presenting exactly the same symptoms no such changes are to be found, yet their long-continued course and recovery with stiffness of part of the spine suggests that the latter are also arthritic.

IV. CASES DUE TO DEFECTIVE BALANCE

These may be classed as (1) those due to defective lateral balance, and as (2) those due to defective anteroposterior balance.

Lateral Defects in Balance.—If one leg is longer than the other, the pelvis must become oblique and the spine curved to one side in standing, and the muscles of one side (generally on the convex side of the curve) are under more strain than those of the other side. This is the simplest form of backache due to defective balance. The pain and discomfort will be most noticeable in standing and walking, and will in many cases be marked over the sacro-iliac region, oftenest on one side. In susceptible persons only a slight degree of lateral curve may be required to produce such backache.

CASE 7.—A clergyman, aged 40, consulted me in 1910. He had always been conscious of his back, even as a boy, having had pain in the lower part of the back and at the end of the spine. For the last two or three years the backache has been decidedly worse, and he now has great discomfort in the lumbar spine in standing and walking; there is no pain in the feet, legs or thighs. After preaching he becomes exhausted, and his nervous endurance is poor. Examination shows a marked lateral curve of the spine to the left, due to 1 inch shortening of the left leg from an unknown cause. This was corrected by a high sole on the left boot, and relief from the backache came in about three weeks, accompanied by very marked improvement in general health and endurance. Two months later he was practically well, and has remained so.

Defective Anteroposterior Balance.—The simplest type of this variety of backache is shown when the abdomen is so large as to cause a serious anterior load.

CASE 8.—A man of 55, in active business, vigorous and athletic, was referred to me in July, 1912, by Dr. S. J. Mixter of Boston, for a persistent lumbar backache of many years' duration, which came on in standing and walking but not in horseback riding. It was so severe that the patient had recently avoided all possible standing and walking. The back was flexible, but the back muscles were spasmodic and hard to the touch. The abdomen was very large and lax. A close-fitting corset was applied to support the lower abdomen, and immediately partial relief was felt. In two weeks the pain had disappeared, and a year later the abdomen was smaller and much less lax, and there was no pain whatever unless the corset became loose. At this time the patient was given exercises for the abdominal muscles.

That defective anteroposterior balance may be manifested by pain in other posterior muscles than those of the back is shown in the following case:

CASE 9.—Woman, aged 25, single, referred in June, 1909, by Dr. Ansel G. Cook of Hartford, who had at one time treated her, complained of great discomfort, especially at the back of the knees, aggravated by standing and somewhat by walking. The pain was attributed by the patient to varicose veins, and she had many cramps, especially in the right leg. The patient stood with an increased curve in the lumbar region, and there was a loss of dorsal flexion in both feet. The gastrocnemii were stretched, higher heels were put on the shoes, and a therapeutic corset was applied.

The patient was dissatisfied with the opinion that varicose veins were not the cause of her trouble, and disappeared. In December, 1910, she returned to report that she had had complete relief of all her symptoms shortly after her first visits. When the therapeutic corset wore out and failed to give her support she had much trouble again in the legs, but on getting a satisfactory corset again the pains in the back of the legs disappeared.

In other instances, anteroposterior balance is disturbed by flat-foot and similar conditions, which, by affording an abnormal base of support, induce back-strain.

CASE 10.—A healthy and vigorous domestic servant, aged 30, consulted me in 1907 for a flexible flat-foot, which gave more trouble in the hips and back than in the feet. Flat-foot plates relieved the pain in the hips and legs, but the backache was so severe that a corset and shoulder-straps were applied, which finally relieved the pain in the back. The patient remained comfortable till 1912, when some friends induced her to discard the plates and wear a boot with a low heel and flexible shank. In two weeks the backache became intolerable, and she was unable to work for a day or two. She reapplied the plates, and her symptoms disappeared.

Backache due to relaxed and slumped attitude is perhaps the commonest type of static backache.

CASE 11.—July, 1908, a girl, aged 15, reported that for some years she had had pain in the hip and sacral backache, diagnosticated as sacro-iliac joint affection. The general attitude was bad, the spine being decidedly rounded in the dorsal region. The spine was tender to the touch, and the girl's endurance was poor, the patient having been out of school for a year and a half. She returned for treatment in September, 1908. She was given a therapeutic corset and started on exercises, which she did daily. Setting-up exercises of a very gentle character were at first given in the recumbent position, and were made more forcible and given in the erect position. After two weeks' treatment the patient was allowed to go home, with directions to lie down half an hour in the afternoon, to take half an hour of active exercise outdoors three times a week, to pursue the exercises, and to go to bed at 8 o'clock each night. The pain in the back gradually disappeared, and after a few months there was no further trace of it.

Finally, there are cases apparently due to defective balance in which the pelvic organs are normal, there is no history of trauma and no reason to suspect arthritis, and yet no gross malposition in the standing position is to be detected. It must be remembered with regard to these cases that we have as yet no reliable normal for the upright position to guide us, that individual variations are many, and that in a given person it cannot be said that he or she stands in such a way that back-strain is not to be considered.

FREQUENCY OF DIFFERENT FORMS

Having thus presented the types of backache with which I am familiar, I proceed to the analysis of 83 cases seen by me in 1912 in private practice either at my office or in consultation, in order to see what they show as to the relative frequency of the different forms. Of these cases 29 were males, and 54 females. In age, the patients ranged from 10 years to over 70, with a fairly even distribution by age periods, but rather more frequent between 15 and 20 and between 35 and 50 than at other ages. As to duration, only 6 were of less than six months, 14 were from six months to a year, four were from ten to fifteen years, and 9 were said to have lasted "many years."

As to the classification into the groups described I found as follows:

Lateral defect in balance, 10, (three of these occurring in bony lateral curvature).

Anteroposterior balance, 31. (Five were due to large abdomens, and in fifteen cases there was some static error in the feet which seemed to have an influence on the defective balance.)

Pelvic, 6.

Traumatic, 20. (Five of these were associated with obviously bad standing positions, but in the others the trauma seemed the only cause.)

Arthritis, 15, (in which must be included two cases of "recurrent lumbago" probably arthritic).

Acute lumbago, 1. (This case was too acute to determine the division to which it belonged.)

The case which was spoken of early in the paper, in which I believe that a lesion of the sacro-iliac joint occurred, was the following:

CASE 12.—A healthy woman of 40, of athletic habit, in the fall of 1911 was standing bent over her dog, which she was washing. Her trunk was horizontal, and with one hand she was holding the dog, when with the other arm she reached up and to the right to get a piece of soap. Something snapped in the right side of the back low down, and when she tried to stand erect it was done with difficulty and with much pain in the right sacro-iliac region. Walking was accomplished with much pain. She had to keep rather quiet, and was treated by an osteopath for a week without relief. When she sent for me I found marked tenderness over the joint, pain in movements of the right leg, especially in walking, and a sidling gait much like that seen in tuberculous disease of the sacro-iliac joint. The back was strapped with adhesive plaster, not with any idea of fixing the sacro-iliac joint, but for the same kind of support that one would give a sprained ankle by a sticking plaster or cloth bandage. Walking was forbidden, and a tight-fitting corset made and worn day and night. More exercise was gradually allowed, followed by massage and exercises for the back muscles, and in six weeks the patient was sufficiently well to resume fancy dancing, which was her means of exercise. There has been no return of the trouble.

DIFFERENTIATION

If a case is traumatic in origin and if the sacro-iliac joints are normal in the roentgenogram and to the touch, it is to be assumed that the muscles, ligaments or joints of the spine or of the spine and pelvis have been sprained, and that the condition is similar to that of the sprain of any other joint. If the case is not traumatic in origin, lateral and anteroposterior balance are to be investigated, and static errors in the feet must be remembered as one cause of defective balance. The round back and the overfeminine figure seem especially prone to static backache, but the diagnosis of this type must sometimes be made in the absence of gross malposition.

In all cases in women the possibility of a pelvic cause must be borne in mind, and an inquiry into symptoms indicating pelvic disorder may lead to a conclusion that a competent cause for the backache exists there. The case must be classed as probably arthritic when it is chronic and there are marked stiffness and pain in motion, with muscular spasm and secondary lateral curvature. Referred pains in the legs and disturbances of sensation are suggestive. A fair-minded surgeon, however, must sometimes confess that he cannot classify the case with certainty.

The coexistence of neurasthenia or psychasthenia does not invalidate the diagnosis, and the diagnosis of hysteric or neurasthenic spine is no diagnosis at all.

PROGNOSIS

Since I have investigated and attempted to classify my cases more closely, my results and prognosis have been much more satisfactory. In balance cases I give a favorable prognosis under proper treatment unless the patient is neurasthenic, in which case I am extremely guarded and doubtful in my own mind as to the outcome. Cases clearly pelvic in origin should not be treated by the orthopedic surgeon of course; cases clearly traumatic are favorable as to prognosis except in elderly persons and in those undertaking litigation. In arthritic cases seen fairly early I look for recovery from pain with a spine more or less stiff, and I expect them ultimately to give up support.

The results in the eighty-three cases seen by me in 1912 are tabulated from my records as follows: cured, 33; improved, 10; relieved, 24; failure to relieve, 4, and no final note, 12.

TREATMENT

The treatment of the pelvic variety belongs to the gynecologist, but it must be remembered that there are often border-land or mixed cases, and that treatment of the static element may be subsequently required, and in certain mixed cases in which either the static or pelvic element may be considered a competent cause, it may be desirable to try the mechanical treatment before proceeding to operation, provided the patient is aware of the situation.

The treatment of arthritis of the spine consists in fixation of the spine, and my personal experience has led me to regard the plaster-of-Paris jacket for this purpose as uncomfortable and on the whole unsatisfactory. A canvas corset, lacing in the back, reinforced by light steel straps, has proved much more efficient and adaptable. In the severest cases a leather corset or steel back-brace may be required.

The treatment of traumatic cases does not differ essentially from that of the arthritic cases just described in the severer cases, or in the lighter cases from that of the static cases to be discussed next.

In the treatment of static cases unilateral defects in balance should be carefully studied, and if present, as shown by a lateral curve of the spine (generally slight), should be corrected by elevating one heel. Static disturbances of the feet, as shown by pronated feet or by feet with short gastrocnemius muscles, should be corrected. The general condition must be inquired into, and so far as practicable, overstrain and faulty habits of life remedied. Recumbency for part of the day is desirable in most cases, and severe cases at first should be recumbent for most of the time.

The mechanical treatment of static cases here advocated is based on the experimental work of Reynolds and Lovett, and on clinical experience. This work showed that a properly fitted corset threw the center of gravity of the body back, and that this effect was reinforced by high-heeled shoes; consequently, in cases presumed to be due to a forward displacement of the center of gravity of the body, and to resulting posterior muscle-strain, the application of a properly fitted corset is the most important part of the treatment. Muscular training might be supposed to be the first requisite, but we are dealing with overused and irritable muscles which first demand rest and support, and as a rule the immediate use of gymnastics and back-massage is unsuccessful and irritating.

The requirements of a therapeutic corset are as follows: 1. It should be tightest around the bottom, and the circular pressure should diminish from the bottom to the top, where it should be loose. In this way abdominal support is afforded and the circular constriction around the glutei, already spoken of, is furnished. 2. It should be straight in front. 3. It should support the hollow of the back. 4. It should not press forward against the back at the top. A therapeutic corset does not require heavy steels to make it efficient, but its proper effect depends on the cut of the cloth and the lines of strain, and the manufacture of such a corset lies within the capacity of any good corset-maker. Ready-made corsets may in many instances be adapted to the proper requirements. For men, a heavier canvas corset, reinforced as may be needed by light steels, is preferable to the lighter woman's corset. The heels of the shoes should in most instances be raised an eighth or a quarter of an inch. As the back quiets down, gymnastic exercises and massage of the back are desirable, and such exercises should be aimed at teaching the patient to learn to assume and to hold a more normal standing position. The electric light is often of value.

CONCLUSIONS

This paper is a plea for a careful etiologic study of each case of chronic backache or lameness of the back, and an attempt to present a classification which is very crude, but which has worked out satisfactorily in practice. Cases have been cited to show the variety of symptoms and the way in which treatment has or has not been successful. The popular diagnosis of "sacro-iliac relaxation" has been commented on, and attention has been called to the fact that adhesive-plaster straps on the skin cannot possibly "immobilize" relaxed sacro-iliac joints which at every step must bear the weight of the trunk as a downward thrust, and that the fact that treatment of this sort often relieves symptoms is fair evidence that the diagnosis in such cases in incorrect.

234 Marlborough Street.

THE USE OF CHOLESTERIN ANTIGEN IN THE WASSERMANN REACTION

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A method of preparing a standard antigen for the Wassermann reaction is given in the Yale number of the *Archives of Internal Medicine*.[1] The advantage of the method is that at any time an antigen may be prepared that gives constant results in the reading of the reaction. This antigen is an alcoholic extract of guinea-pig heart half saturated with cholesterin; the reason for the addition of this substance is at present unknown, but it seems to stabilize the reaction.

Of late there have been a number of articles criticizing the addition of cholesterin to the syphilitic antigens, most of the authors asserting that it renders the antigen too sensitive. As a result of something more than five thousand routine tests[2] comparing the

1. Field, Cyrus W.: Method Developed for Obtaining a Standard Wassermann Reaction, Arch. Int. Med., May, 1914, p. 790.
2. All patients over three days in the hospital are supposed to have a Wassermann test. From fifty to one hundred tests are performed each day, five days of the week.

acetone insoluble antigen with this cholesterin antigen, it was found more constant and more reliable if certain fundamental conditions were observed in using it. Some workers recently have recommended the use of 1 or 1½ units of complement instead of the 2 units as used in the original Wassermann method, in order to render the test more delicate. The persons recommending this modification can have but slight knowledge of serum work, for they seem not to realize that Wassermann adopted the 2 units of complement for a very definite and, to all serologic workers, a well-known reason. The complement is thermolabile, and its exposure to a temperature of 37.5 C. (99.5 F.) for one hour decreases its activity. Therefore, if but 1 unit of complement is used, some is destroyed during the binding period and so a partial inhibition will occur without any reaction between antibody and antigen.

The cholesterin antigen must be used with between 2 and 3 units of complement; even 4 units will reduce the reading only slightly. The presence of a native hemolysin may be ignored entirely, as it makes no difference if there be 2 or 10 units of amboceptor present, if the sheep-cells have been sensitized with hemolysin before they are added to the serum-complement-antigen mixture. These facts may be seen in Table 1. Again, with cholesterin antigen it is

TABLE 1.—COMPARISON OF VARYING AMOUNTS OF COMPLEMENT AND AMBOCEPTOR ON A POSITIVE WASSERMANN

						Antigen Tubes					
A	B	C	D	E	O	0.10	0.08	0.06	0.04	0.02	0.009
0.1	2	2	1	16	0	3	3	3	3	3	1
0.1	4	2	1	14	0	3	3	3	3	2	0
0.1	6	2	1	8	0	3	3	2	0	0	0
0.1	2	4	1	16	0	3	3	3	3	3	1
0.1	4	4	1	13	0	3	3	3	3	1	0
0.1	6	4	1	7	0	3	3	1	0	0	0
0.1	2	6	1	16	0	3	3	3	3	3	1
0.1	4	6	1	13	0	3	3	3	3	1	0
0.1	6	6	1	10	0	3	3	3	1	0	0
	2	2	1	0	0	0	0	0	0	0	0

A = Amount of patient's serum in 1 c.c.
B = Units of complement.
C = Units of amboceptor.
D = Units of sheep red blood-cells.
E = Total number of units.
O = Control tube; no antigen.

unnecessary to make use of the ice-box incubation of the serum-complement-antigen system as the cholesterin seems to increase the velocity of the reaction. The rule in this laboratory is to incubate the complement-serum-antigen mixture in a water-bath for not more than fifty minutes at from 35 to 36 C. (from 95 to 96.8 F.). As has been pointed out,[1] six different dilutions of the antigen are used for testing each serum. The greatest amount of antigen used is 0.1 mg., with 0.1 c.c. of the serum, plus from 2 to 3 units of complement. The second antigen tube contains 0.08 mg., the third 0.06, the fourth 0.04, the fifth 0.02 and the sixth 0.009 mg. In this way we have a series of tubes with a constant amount of serum and a decreasing amount of antigen, and if we let 0 represent complete hemolysis, 1 marked hemolysis, 2 slight hemolysis and 3 no hemolysis, we have a possible numerical series of from 0 to 18, depending on the amount of inhibition of hemolysis in this series of tubes; for complete inhibition in all six tubes would give $3 \times 6 = 18$.

In the series of over five thousand cases, only 0.5 per cent. have given complete inhibition in the 0.009-mg. tube. If too little serum is obtained to use in the six antigen tubes and one or two controls, we can reverse the procedure and vary the amount of serum, keeping the antigen constant at 0.1 mg. in each tube. The results of such a procedure may be seen in Table 2, and it shows well the close agreement in

TABLE 2.—COMPARISON OF POSITIVE SERUMS WITH SERUM CONSTANT, ANTIGEN VARIABLE, AND ANTIGEN CONSTANT, SERUM VARIABLE

		0	1	2	3	4	5	6	T
58	A	0	3	3	3	3	3	0	15
	B	0	3	3	3	3	3	0	15
62	A	0	3	3	3	2	0	0	11
	B	0	3	3	3	1	0	0	10
66	A	0	3	3	3	3	3	0	15
	B	0	3	3	3	3	3	1	16
67	A	0	3	3	3	3	3	0	15
	B	0	3	3	3	3	3	1	16
70	A	0	3	3	3	3	3	0	15
	B	0	3	3	3	3	3	0	15
72	A	0	3	3	3	2	1	0	12
	B	0	3	3	3	3	2	0	14
73	A	0	3	3	3	2	0	0	11
	B	0	3	3	3	3	1	0	13
75	A	0	3	3	3	3	1	0	13
	B	0	3	3	3	3	3	0	15

A = Serum constant, 0.1 c.c. antigen variable; 1 = 0.1 mg.; 2 = 0.08 mg.; 3 = 0.06 mg.; 4 = 0.04 mg.; 5 = 0.02 mg.; 6 = 0.009 mg.
B = Antigen constant, 0.1 mg. serum variable; 1 = 0.1 c.c.; 2 = 0.08 c.c.; 3 = 0.06 c.c.; 4 = 0.04 c.c.; 5 = 0.02 c.c.; 6 = 0.009 c.c.
O = Control tube, 1 c.c. serum, no antigen.

the final readings of the two variations. The amount of antigen 0.1 mg. is one-fifth the anticomplementary dose with the complement diluted 1:8 and using 0.5 c.c. This may be seen in Table 3. We do not find

TABLE 3.—ANTICOMPLEMENTARY TITRATION

	Amounts of Antigen in Milligrams									
A	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.
0.4 c.c.	0	0	0	0	1	1	2	2	3	3
0.5 c.c.	0	0	0	0	0	1	1	2	2	3
0.6 c.c.	0	0	0	0	0	0	1	1	1	2

After 1 hour at 37 C., 1 unit of sheep red cells sensitized with 2 units of amboceptor were added. Column A = amounts of 1:8 complement solution.

Complement titer with 2 units of ambocentor + 1 unit of non-sensitized sheep red cells. Amounts in cubic centimeters of 1:8 complement.

0.5 c.c.	0.4 c.c.	0.3 c.c.	0.2 c.c.	0.1 c.c.
0	0	0	0	1

anticomplementary substances in the serum if it be poured off the clot within twelve hours after collection and centrifuged free of red cells.

With this cholesterin antigen the serum must be inactivated. The constancy of the unit readings was demonstrated in the previous paper,[1] and in Table 4 there are shown various readings on the same patient obtained at different times. A child was admitted to the hospital with amaurotic family idiocy. This child gave negative Wassermann reactions, but in its appearance suggested congenital lues. The blood from the father (B. S., a Hebrew, aged 28) was found to have 15 units. He did not accept this report and had his serum taken by a private physician, who sent it to the Board of Health; it was reported a very strong positive. Not satisfied with this, and unknown to ourselves, he came to our dispensary and his blood was again sent in to this laboratory, where it was reported again 15 units. He then went to a large private hospital in this city where he had his Wassermann taken again, and this time it was reported negative. For some unknown reason he was dissatisfied with this report and returned to our dispensary, where the blood was once more taken and sent to the laboratory and reported back 15 units. At the time these readings were made the previous reactions were unknown to us. He came to the laboratory a week after the last report, thinking that it was another institution, to have another test made. He maintained that he had never been sick and had never had a chance to contract the disease. On questioning him closely it was found that

he had not been in robust health for some years, that his wife had not been well since she had married him, and that the child with amaurotic family idiocy was the youngest, the elder one (aged 6) having always been a sickly and poorly nourished infant. He was requested to bring his wife and eldest child to the laboratory, which he did. Blood was obtained from all three and the result of the tests is shown in Table 4. The child presented the appearance of a case of mild congenital lues with slightly pegged teeth. The mother stated that she had had one miscarriage at six months and one birth of a dead child at full term; that she suffers continually from headaches and is ill nourished. The husband complained for the first time of his mouth being sore; his tongue showed several typical mucous patches. With the acetone-insoluble antigen the child showed a weak positive, and the mother was negative. In Table 4 the reactions are with the cholesterin antigen.

TABLE 4.—WASSERMANN REACTIONS WITH CHOLESTERIN ANTIGEN

Patient	Date	Units
B. S.	1/28/13	15
B. S.	2/18/13	15
B. S.	3/11/13	15
B. S.	3/3 /13	15
Wife	3/ 3/13	2
Child	3/ 3/13	11

The clinical diagnosis of syphilis may be extremely difficult and we now know that there are many cases of latent or mild lues in which the disease is not suspected, and in many cases no so-called primary or secondary lesions are observed, and these patients may give negative Wassermanns and show no symptoms leading one to suspect a diseased condition clinically. The court of last resort as to the value of the Wassermann reaction must be the post-mortem examination. In this hospital the positive Wassermanns, even when only 1 or 2 units during life, have been constantly associated at post mortem with pathologic lesions which have been recognized for years as being syphilitic. On the other hand, there have been a certain number of cases showing syphilitic lesions which have given during life a negative Wassermann. Until there is obtained a series of one thousand or more necropsies with Wassermann reactions taken during life and correlated with the necropsy findings, it is merely guesswork to state the absolute value of this reaction. We must, it seems, revise a great many of our conceptions in regard to lues. The more we study it in the light of the Wassermann reaction, the more closely does it resemble tuberculosis in its protean manifestations. Also, we must bear in mind that there are, without doubt, variations in the virulence of different strains of spirochetes and that there are variations in the resistance of individuals to the spirochete. Not until a very large series of cases has been studied in the routine manner described shall we be able to follow this disease in all its manifestations.

In conclusion, we must remain in a neutral position in the face of weak positive reactions, and in justice to the patient we should give a provocative dose of salvarsan or neosalvarsan and see whether or not the reaction is increased. In this hospital we have in several cases found it necessary to give two or even three and four full doses before being able to obtain a positive reaction in known syphilitics. In view of the possibility of these cases developing syphilitic lesions of the parenchymatous type, we must be on our guard and watch such patients very closely, since after the development of paresis there is little hope in specific therapy.

Under specific treatment the reaction slowly disappears and the serum from week to week shows a gradual drop in the number of reacting units. The reaction disappears with this cholesterin antigen much more slowly than with any of the other antigens. The statement made recently in the *British Medical Journal* that a positive reaction with this antigen means only that the patient has had syphilis and does not indicate a still active process is, in our opinion, unjustified by the facts and our observations.

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FATAL ATTACK OF FILARIAL LYMPHANGITIS SIMULATING BUBONIC PLAGUE

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Patient, R. P., aged 10, reported as a suspected case of bubonic plague, entered the Quarantine Hospital at noon, January 28. Two hours and a half later an examination was made by the director of sanitation and myself. From a careful observation of the symptoms, and exploration of the painful zones in the groins we concluded that the diagnosis of plague was probably incorrect; but we were convinced that the suspicions of Dr. Dobal, the attending physician, were justified; because painful glandular infarcts, suddenly appearing in the groin of persons living in tropical regions in which previous epidemics of bubonic plague have been registered, may and should be considered as suspicious, especially when accompanied by serious general symptoms, such as fever, delirium and stupor, provided that, as in this case, the patients are not affected with venereal diseases or ulcerative or inflammatory processes of the inferior extremities.

General Examination.—The child was seriously ill. He was lying in a dorsal decubitus with the right thigh flexed on the abdomen, unconscious and stuporous; the expression in the eyes was vague and irresolute, and in answer to questions only whispered incoherent phrases were elicited. The pulse was uncountable, the temperature exceeded 39.5 C. (103.1 F.), subsultus tendinum almost continuous and a quiet delirium gave evidence of the exhaustion of cerebral centers now thoroughly intoxicated. There was involuntary emission of much dark and fetid liquid fecal material. Locally we observed only two small glandular infarcts in the region of the right groin, which were excessively painful on palpation, and pressure no matter how light, awakened the patient from his stupor, and caused him to complain and sometimes to cry out. The patient was in fact overwhelmed by the fierce onset of some virulent toxin, and was quietly succumbing to the inevitable narcosis of death.

The manner of onset of the attack, with strong chill, hyperpyrexia, thirst, and later vomiting, all rapidly followed by delirium, stupor, and profuse diarrhea, clinically excluded the diagnosis of any ordinary form of bubonic plague in spite of the intense pain localized in the region of the right groin and the hardly perceptible infarct of the inguinal glands. To those accustomed to follow the course of plague, there was no possible confusion except with septicemic forms with poor reaction. But in such case, the experimental inoculations, etc., would openly resolve all doubts. On the contrary, the sudden attack, the suggestive history of its progress during the preceding twenty-four hours and the suspicious syndrome presented, impressed on our minds the belief that we were facing a case of pernicious filarial lymphangitis. I was informed afterward that the same suspicion had passed through the minds of Drs. Gutierrez Igaravidez and Zavala, who independently and on different occasions examined the case.

We felt obliged therefore to conduct our investigations with both possibilities in view, because the etiology and pathogenic problems had exceptional importance from the sanitary point of view as well as for that affecting the nosography of the country.

Urinary Examination.—A specimen of the patient's urine (100 c.c. obtained by catheter) was examined at the biological laboratory, Mr. J. Loubriel performing the chemical analysis, and I the microscopic examination of the sediment. In the dense and reddish urine, specific gravity 1.024, Loubriel discovered only traces of sero-albumin, but in the sediment I verified the presence of the following histologic elements: fairly numerous erythrocytes, a number of leukocytes in proportion to the frequency of red corpuscles, fairly numerous epithelial cell of the tubuli contorti, some of the renal pelvis, a moderate number of hyaline casts, a few finely granular casts, fairly numerous irregular crystals of uric acid, and a most unique and interesting find: lying near one of the edges of the preparation there appeared a beautiful specimen of Lewis and Manson *Microfiliaria nocturna*, embryo of *Filaria bancrofti*, confirming the tentative clinical diagnosis which we had made. All the operations were accomplished with exquisite cleanliness from the moment of the catheterization up to and including the microscopic examination of the sediment.

Blood Examination.—The presence of the filarial infestation did not, however, exclude the possibility that the pernicious lymphangitis might be a local syndromic expression of septicemic plague. Specimens of fresh blood were therefore collected from the patient at 9 p. m., January 28, and examined at 8 a. m. next day. We succeeded in confirming the presence of numerous embryos of the *Filaria nocturna* in the fresh specimens of peripheral blood.

Meanwhile the patient had died at 3 a. m. the same morning, during the coma and subnormal temperature following a period of delirium, convulsions, and hyperpyrexia of the afternoon and evening before.

Necropsy.—This was begun at 9 a. m. by Dr. Hernandez and myself, and lasted three hours. Specimens taken for histologic study were preserved, part in 90 or 95 per cent. alcohol and part in Zenker's fluid.

The subject was a child well constituted, apparently aged 12, and without any sign of traumatism of the skin, or ulcerated lesions of the trunk, or extremities. The post-mortem rigidity was complete, and lividity had begun to appear in several places, but principally in the inguine-abdominal region of the right side. This zone during life was the only location wherein there were local manifestation of pain and inflammation which would give rise to a reasonable suspicion of Yersinian infection as maintained at first by Dr. Dobal. Furthermore, in this region Dr. Hernandez had punctured a gland in seeking the necessary material for a bacteriologic diagnosis.

When exposed by dissection the cluster of glands in Scarpa's triangle as well as the inguinal group appeared intensely red and congested, some of them larger than normal, all lightly enveloped in a gelatinous substance, and on section exuded a transparent lymph. The redness and congestion and the lymphatic flow continued under Poupart's ligament along the line of the iliac vessels into the abdominal cavity. The right and left ganglionic group were dissected out and preserved, half of each being placed in alcohol, and the other half in Zenker's solution.

The lungs, heart and pericardium appeared normal. The thymus was very large. The right lung was removed, and blood-smears obtained from the parenchyma, specimens of which, removed from the vicinity of the hilum and from the lobules, were also preserved for future histologic study. Cultures and smears were made of the heart's blood. The hypertrophied thymus was extracted whole, divided into small pieces, and preserved. The liver, pancreas and spleen presented a normal color, but the kidneys were congested and enlarged, the mesenteric gland enlarged, and the retroperitoneal glands red, infarcted, infiltrated, and covered with an edematous cellular tissue. After resecting the gall-bladder, previously ligating the cystic duct and tributary vessels, in order to make cultures of its contents in the laboratory, we removed several fragments of the liver, which weighed 830 gm.

The spleen weighed 50 gm. Specimens of splenic pulp, obtained with aseptic precautions, were used to inoculate culture mediums. Another fragment was rubbed over the skin of the abdomen of two guinea-pigs, previously dry shaved and lightly scarified. Specimens of this organ and of the kidney and suprarenal capsules were also placed in the preserving fluid.

The dissection of the retroperitoneal glands was hastily done, owing to the advanced hour. Not being able to stop to make a minute and prolonged investigation, as would have been necessary in order to find and separate the harboring places of adult parasites, we limited ourselves to gathering the largest possible number of glands and their lymphatics, which we preserved in Zenker's fluid and alcohol. The same practice was adopted with reference to the mesenteric glands.

While Dr. Hernandez and I were advancing with our work of the necropsy, Dr. Gutierrez Igaravidez was rapidly examining a number of smears from the lung and heart, stained by the Romanowsky method, in all of which he found numerous microfilaria. While the slides from the lungs were literally crowded with embryos, those smeared with the blood of the heart exhibited a very considerable diminution in number.

The results of the bacterial and experimental investigation obtained with the specimens secured *intra vitam* and during the post-mortem examination were as follows:

1. The microscopic examination, made by Dr. Hernandez, demonstrated the absence of bipolar staining bacilli in the glandular substance, in the blood of the great vessels, and in the fluids of the viscera.

2. The incubation and the careful inspection, also attended to by Dr. Hernandez, of the special mediums inoculated for the purpose of bacteriologic diagnosis of the plague, were also absolutely negative.

3. The experimental inoculations of the guinea-pigs with the glandular fluids, *intra vitam*, and with the splenic pulp, taken post mortem, hypodermically in the former case, and by way of the skin in the latter, produced no alteration in the physical condition of the animals, and, therefore, after seven days must be considered negative.

4. The cultures made by us with the different culture mediums to ascertain if other micro-organisms were present in the blood of the heart, and in the contents of the gall-bladder, proved to be sterile after several days of incubation at 37 C.

5. The cultures of splenic pulp rapidly developed as typical colonies of *Bacillus coli communis*.

CONCLUSIONS

1. The patient died within a period of thirty-six hours from some pernicious paroxysm which was not of malarial origin.

2. The disease which caused this rapid death cannot be confounded, in spite of the painful adenitis of the right inguinal region, with one of the common forms of bubonic plague.

3. Such confusion could have been possible only with the septicemic form.

4. In case of a plague septicemic an early necropsy would have dispelled all doubts and thus fixed on the right diagnosis.

5. The clinical syndrome, and the unusual violence of the attack, inclined us to the theory of an endemic pernicious lymphangitis rather than of a plague septicemia.

6. My finding the embryos of *Filaria nocturna* in the urinary sediment of the patient was of value as confirming the theory.

7. The presence of a great number of microfilariae in the blood of the peripheral circulation, demonstrated in blood collected during the night, and confirming the findings in the analysis of the urine, proved without doubt the diagnosis of a filarian infestation.

8. The presence of a filariasis, however, did not exclude concomitant plague septicemia.

9. On this supposition the necropsy was the only means of resolving the doubt.

10. The lack of any visible pathologic alterations in the viscera, and especially in the spleen, liver, and lungs, dissipated all ideas of it being any form of bubonic plague.

11. The absence of Yersin's bacillus in the microscopic preparations obtained from the glandular fluids, *intra vitam*, and of the visceral pulp, post mortem, excluded definitely the probability of its being plague.

12. The entirely negative results of the experimental inoculating of guinea-pigs *intra vitam*, with the glandular fluids, and post mortem with the splenic pulp, and the failure of microbian colonies to develop in the mediums especially prepared from both, also definitely excluded the diagnosis of plague.

13. The absence of streptococci or staphylococci, and of all bacillary forms in the blood of the general circulation taken from the heart, excludes furthermore any such bacteriemia caused by aerobic microbes.

14. The presence of colon bacilli in the splenic pulp lacks importance and has no pathologic significance in this case, because it is a microbe which normally invades the organs, and especially the spleen a few hours after death. It must be taken into account, furthermore, that the necropsy was commenced six hours after death, and if this micro-organism had been in movement it would also have been found in the blood of the heart, and in the contents of the bile bladder.

15. Logically, therefore, according to the findings in the anatomico-pathologic examination, and the result of the bacteriologic investigation, the only real cause of the death of the child that can be accepted is endemic pernicious lymphangitis of filarial origin.

16. This fact has exceptional importance for the nosography of the country, because contrary to the general opinion of many investigators it proves (providing no other cause for the death can be found) that certain forms of filarial lymphangitis, without the assistance of other complicating micro-organisms, may *per se* rapidly kill their host.

17. It is also important because it shows the occurrence in Porto Rico of those grave and pernicious forms of tropical lymphangitis of filarial origin described by the Brazilian authors under the name of endemic lymphangitis, and by Mazaé-Azema, of the Ile de la Réunion, by the name of generalized intraganglionar lymphangitis.

Still more important is the fact that our diagnosis may be sustained without objection. If it is true, as the Brazilian authors and the physician of the Ile de la Réunion have it, that endemic plague exists in both countries, the lack of bacteriologic diagnosis would inevitably cause confusion between a typical form of plague and serious cases of elephantoid fever, whereas, in our case, this argument may be thrown aside, because the complete study, both microscopically and bacteriologically, ante mortem and post mortem, accomplished by competent and experienced physicians, and following procedures established in the laboratory for the diagnosis of bubonic plague, is the base on which I support my contention.

DISEASES CONNECTED WITH MECKEL'S DIVERTICULUM

WITH ESPECIAL REFERENCE TO DIVERTICULITIS *

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There occurred in my practice not long ago a case in which the combination of clinical manifestations and pathologic lesions was so unusual, so unexpected, and so misleading that it seems worthy of being recorded. It belongs in the category of diverticulitis, but seems almost unique in some respects. At least I have failed to find any case on record giving just the same symptom-complex.

Joseph C., aged 19 months when first seen by me, March 15, 1912, had been in good health and well nourished until in the preceding summer, when he suffered from a condition which his physician called "auto-intoxication," although he later spoke of "scurvy." Possibly both disorders had been experienced. He recovered and remained well until November, 1911, when he had a fall down stairs, but apparently without discoverable serious injury. A week later he began to suffer from slight attacks of indigestion. Early in January, 1912, the mother was alarmed to find on one occasion that the formed stool which the baby had passed was of a partly reddish color, and that when put into water it stained it a deep red. Previously to this there had been some constipation. The bowels now remained normal and without constipation for two weeks, when another reddish stool was passed similar to the one described. The child suffered also from attacks of abdominal pain which were supposed to depend on indigestion. February 16, he had an attack of complete suppression of urine lasting for over twenty-four hours. Catheterization showed the bladder to be empty. He then urinated very little for almost a week. There had been some slight drowsiness before the attack. There was no edema or nervous symptoms of any sort. At this time the mother noticed the change in the child's appearance, the former healthy tint having been replaced by a waxy whiteness which never afterward improved. After recovery from the suppression and oliguria, the attacks of paroxysmal abdominal pain continued to occur with greater frequency and constantly increasing severity, the child, when suffering most, often lying on the abdomen with the knees drawn up under him. Occasionally there was vomiting of thickly curdled milk. Constipation became troublesome, and bowel movements were obtained only by the use of purgatives, the expulsion of feces being accompanied by much flatus. A Philadelphia pediatrist was called in consultation, and made the diagnosis of anemia, which a blood-examination showed to be apparently of a secondary nature. Nothing was said to the parents of the importance of the blood-colored stools. Probably the existence of such stools had not been mentioned by them. Repeatedly since the attack of suppression the feces had been of a liver-color or a reddish brown. Nosebleed had occurred once a few days before I saw him.

At the time of my first visit the baby was in a dull mental state, looked very ill and was strikingly pale, but was without edema or evident wasting. Abdominal pain was severe, and the abdomen moderately tympanitic and tender. Just before the visit there had been passed by rectum a small dark-red blood-clot the size of a pigeon's egg, and the child had also vomited. The great weakness of the patient prohibited satisfactory examination, and the only diagnosis possible seemed to be that of secondary anemia dependent on repeated, or, perhaps, almost continuous, intestinal hemorrhage, generally of small amount at any one time. The cause of the hemorrhage was not certain, but ulceration of some portion of the intestinal tract seemed probable. The pain appeared to depend possibly on the tympanites, although this

* Read before the American Pediatric Society, May, 1914.

explanation was not entirely satisfactory. The significance of the attack of urinary suppression was not at all clear.

March 16: There had been three or four intestinal hemorrhages of considerable size during the preceding night accompanied by much abdominal pain. The child was seen with me on this day by Dr. J. H. Jopson, attending surgeon to the Children's Hospital of Philadelphia, who could discover no rectal disease or anything abnormal in the abdominal cavity, although the tympanites prevented to some extent a satisfactory investigation. The question of exploratory laparotomy was discussed, but the uncertainty of the diagnosis and the extremely weak condition of the patient made this seem inadvisable. A 10 per cent. gelatin solution was given freely by the mouth, albumin-water prescribed as the diet, and laudanum in 2-drop doses ordered as demanded by the pain. A hypodermic injection of 2 c.c. of horse-serum was administered by Dr. John Speese, in the effort to control the hemorrhage.

March 17: An examination of the blood made on this date by Dr. John Diven showed very rapid coagulation on puncture, a hemoglobin percentage of 22, red blood-cells 1,590,000, and leukocytes 7,840. The differential count (300 cells) gave polymorphonuclears 76 per cent., small lymphocytes 14 per cent., large mononuclears 5 per cent, transitionals 3 per cent., cosinophils 1 per cent, and basophils 1 per cent. There was poikilocytosis, but no nucleated red cells were found. The examination of the urine made by Dr. C. A. Fife showed a specific gravity of 1.016; acid reaction; no albumin or urobilin; trace of indican; uric acid and phosphate crystals, no casts or red or white blood-cells.

March 20:: There had been no return of hemorrhage, and the pain was better, without need for the laudanum. The general condition, likewise, had improved. The bowels had been opened daily by saline douches.

March 22: The child was very much better, and was sitting up out of bed.

March 27: Two days previously there had commenced a serious relapse in the condition of the patient, and the pain had been extremely severe; more than could in any way be accounted for by the tympanites. Some slight evidence of blood had appeared in the stools. Castor oil was administered on the day previous, and a very large mass of cheese-like consistency was passed, of a most offensive odor but apparently not containing blood. The child died exhausted on the 27th. During the attack there had been a moderate irregular febrile reaction.

The final clinical diagnosis was that of secondary hemorrhage depending on ulceration somewhere in the intestinal tract. The cause of the severe pain was not clear. A necropsy was made by Dr. Howard C. Carpenter, whose report reads as follows:

"On opening the abdomen a localized peritonitis was seen just below the umbilicus. This localized peritonitis could have been placed in a circle having a diameter of 8 cm. In this area four coils of intestine were firmly matted together, and the serous coat of the bowel showed a fibrinous peritonitis. When the coils were forcibly separated an abscess was discovered which contained a little more than 2 drams of pus. Further dissection allowed the pus to escape and revealed a Meckel's diverticulum in the center of the abscess-cavity. The diverticulum measured 3 cm. in length, and its walls were quite thick, averaging about 8 mm., but thinner at the tip. It was firm on palpation, giving the sensation characteristic of a chronic inflammatory process. The mucosa of the diverticulum was swollen and eroded, and at the tip of the organ there was found an ulcer 8 mm. in diameter. The opening between the ileum and the diverticulum was small but patulous. The distal extremity of the diverticulum was free. There was a purulent exudate at its tip on the serous surface, corresponding in location to the ulcer on the mucous surface. The remainder of the intestine, including the appendix vermiformis appeared normal. The mesenteric glands were somewhat enlarged but without evidence of suppuration. The liver was normal in size but yellowish in color, showing a fatty infiltration. There were no metastatic abscesses discovered. The spleen was normal. The kidneys showed an acute diffuse nephritis. They were moderately enlarged and red in color, with a wide cortex containing reddish streaks."

We have here, then, probably primarily an ulcerative inflammation of Meckel's diverticulum which was the cause of the persistent leaking of blood from the bowel, and of the severe anemia. As time elapsed, this inflammation extended to the serous layer of the diverticulum, producing a secondary, purulent peritonitis, localized by the matting of the coils of the ileum around the seat of suppuration. The severe abdominal pain was due to this peritonitis, and in part, perhaps, to the kinking of the intestine, making evacuation of the bowel difficult, and accounting for the constipation. The origin and bearing of the nephritis was uncertain. It appeared to have had little part in the final complex of symptoms and the fatal termination.

Meckel's diverticulum, the remains of the omphalo-mesenteric duct, although bearing the name of this investigator, was in reality, according to Fitz,[1] known earlier, being illustrated by Ruysch[2] in 1701. The organ may cause disease in various ways. The subject has been studied in its various aspects by numerous writers, among whom I may mention Rayer,[3] Fitz,[1] Kelynack,[4] Payr,[5] Hilgenreiner,[6] Porter,[7] Bunts,[8] Turner,[9] Clogg,[10] Forgue and Riche,[11] Gray,[12] Carnett,[13] Drummond,[14] Hertzler and Gibson,[15] and Wellington.[16] I shall, therefore, make no attempt at any exhaustive reference to the literature of the subject with details of reported cases.

None of the affections of Meckel's diverticulum appear to be of common occurrence, although a persistence of the organ in some form is found in from 1 to 2 per cent. of all persons. Thus Kelynack[4] found the diverticulum present in 13 out of 1,248 subjects examined (about 1 per cent.); the committee of the Anatomical Society of Great Britain and Ireland[17] 16 times in 769 bodies (a little over 2 per cent.); and Mitchell[18] 39 times in 1,635 bodies. Hilgenreiner[6] gives statistics on 4,848 necropsies, reported by a number of investigators, with 90 having diverticula, about 1 in every 54 persons; and Bienvenue[19] in a similar manner analyzed a series of necropsy-statistics and found 126 instances of the persistence of Meckel's diverticulum in 9,672 necropsies, or 1.7 per cent. The organ is present much more frequently in males. Of Mitchell's[18] 39 cases, 34 were in males. In Turner's[9] 145 cases in which the diverticulum was merely a post-mortem finding, without pathologic alteration, the distal extremity was attached to some region in only 9 instances. On the other hand, in 161 cases with pathologic changes it was attached in 110.

1. Fitz: Am. Jour. Med. Sc., 1884, lxxxviii; 30.
2. Ruysch: Thesaurus Anatomicus, 1701, vii, Fig. 283 (quoted by Fitz).
3. Rayer: Arch. gén. de méd., 1824, v, 80.
4. Kelynack: Manch. Med. Chron., August, 1896, p. 338.
5. Payr: Verhandl. d. deutsch. Gesellsch. f. Chir., 1902, xxxi, 347.
6. Hilgenreiner: Beitr. z. klin. Chir., 1902, xxxiii, 702; 1903, xl, 99.
7. Porter, Miles F.: Abdominal Crises by Meckel's Diverticulum, THE JOURNAL A. M. A., Sept. 23, 1905, p. 883.
8. Bunts: Ann. Surg., 1904, xl, 536.
9. Turner: Guy's Hosp. Rep., 1906, lx, 279.
10. Clogg: Brit. Jour. Child. Dis., 1906, iii, 41; 1911, viii, 405.
11. Forgue and Riche: Le diverticule de Meckel, 1907.
12. Gray: Brit. Med. Jour., 1907, ii, 823; 1908, ii, 909.
13. Carnett: Therap. Gaz., 1910, xxxiv, 77.
14. Drummond: Surg., Gynec. and Obst., 1913, xvi, 656.
15. Hertzler and Gibson: Am. Jour. Med. Sc., 1913, cxlvi, 364.
16. Wellington: Surg., Gynec. and Obst., 1913, xvi, 74.
17. Committee of the Anatomical Society of Great Britain and Ireland: Jour. Anat. and Phys., 1891-1892, xxvi, 91.
18. Mitchell: Jour. Anat. and Phys., 1897-1898, xxxii, 675.
19. Bienvenue: Thèse de Paris, 1912.

As a rule, the presence of Meckel's diverticulum gives rise to no symptoms whatever, and this is particularly true, as just pointed out, when it lies distally free in the abdominal cavity. A number of series of cases have been published, however, in which the organ occasioned symptoms of disease. Thus Porter[7] details 184 collected reports of cases of disease of the diverticulum, although he found others on record with too meager a description to render them of value for study. Forgue and Riche[11] collected 287 cases of intestinal obstruction by Meckel's diverticulum, and Wellington[16] 326 cases of disease of the organ. The largest series of reported cases of pathologic conditions of the diverticulum appears to be that by Rostowzew[20] of 634 cases. I have not had access to his original publications.

Lesions due to Meckel's diverticulum seem oftenest to produce symptoms in adult life, the average age of Porter's[7] patients being 21 years and 9 months. Bienvenue,[19] however, thinks that the greatest number of pathologic changes occur in childhood. Males are more frequently affected than females; in 265 of Wellington's[16] cases in which the sex was mentioned, there were 201 males and 64 females.

1. The most frequent lesion found is *strangulation of the intestine by the diverticulum or its remains,* usually attached to the umbilicus or to some part of the intestine, mesentery or other region. In cases of obstruction by Meckel's diverticulum, Hilgenreiner[6] found the organ attached distally in the proportion of about 4 attached to 1 free, with the attachment most frequently to the mesentery. The diverticulum may either be in the form of a fibrous, cord-like remainder of the organ, or have its lumen still present, through all or a part of its extent. In either case the ileum becomes ensnared in various ways, causing constriction and strangulation. Although a considerable number of such cases are reported in medical literature, the lesion is yet uncommon enough to produce probably a sensation of surprise in any physician discovering it. My own experience is limited to a single case made certain by necropsy. Of Porter's[7] 184 cases of obstruction by Meckel's diverticulum, 101 were due to the presence of a constricting band; and this was true, likewise, in 144 of Wellington's[16] 326 cases, not including intussusception of the diverticulum or volvulus.

The symptoms are those characteristic of most varieties of intestinal obstruction, with the exception of ordinary ileocecal intussusception, and it is only by operative interference or at necropsy that the diagnosis can be made with certainty. Intestinal obstruction due to this cause may occur in early life or later. There has been a division of opinion as to which period is more common. Forgue and Riche[11] and Hilgenreiner[6] agree that the most frequent age is from 15 to 25 years, and the weight of opinion seems to be in favor of this view. It is estimated by Halstead,[21] on the basis of 991 collected cases of strangulation of the intestine from different causes, that 6 per cent. are dependent on Meckel's diverticulum. On the other hand, of the 669 cases of obstruction by bands occurring in the London Hospital during 13 years (Barnard[22]) but 21 (3.14 per cent.) were due to the diverticulum.

It is to be remembered that strangulation of the ileum by a Meckel diverticulum is in a way retroactive, and the diverticulum in its turn, if it has retained its original character, may become strangulated by the ileum.

2. Another condition, properly a malformation, and naturally always congenital, is the persistence of Meckel's diverticulum with an *opening at the umbilicus.* This is unusual, and the subjects are nearly always males. Wellington[16] found but 21 instances in his 326 cases of disease of the diverticulum. Strasser's[23] statistics included a larger number, 63 in all. The lesion results in a fecal fistula through which feces may be discharged, or even, as in some reported cases, intestinal worms. The mucous membrane of the diverticulum protrudes at the umbilicus, forming a tumor, generally small, sometimes of larger size. The fistula is single and centrally situated, or sometimes, if the tumor is very large, there are two lateral openings. Occasionally, the intestine may protrude and become strangulated. Sometimes a persistent Meckel's diverticulum is obliterated near the intestine, and in this event mucus, but no feces, is discharged from the fistulous umbilical opening.

3. Among other unusual conditions sometimes found is the *formation of a cystic tumor,* the diverticulum being obliterated at both ends, as in the cases reported by Fox[24] and by Cawardine.[25] In the latter there was a cystic dilatation of the diverticulum in a new-born infant, filled with meconium.

4. *Concretions* of smaller or larger size may be present in the diverticulum. This was well illustrated in the case of Beach[26] in which there was a fecal concretion the size of a pigeon's egg, with communication through the diverticulum between the intestine and the bladder. In a necropsy reported by Sherren,[27] many small black calculi were found in the diverticulum. Similarly, as in the case of the appendix, foreign bodies of various sorts have been reported present.

5. A very unusual condition is described by Bland Sutton[28] in which there is a *superinvolution of the diverticulum,* as a result of which narrowing of the intestine is produced, the obliterative process in the diverticulum having passed beyond this region to the ileum.

6. In other cases a stenosis of the ileum may be caused by *traction* of a short diverticulum attached at its distal extremity or elsewhere.

A Meckel diverticulum persisting as a short, free organ may give rise to trouble in various ways:

7. Here is to be mentioned the rare *invagination of the diverticulum,* which is very liable to be followed by an ileocecal intussusception. Cheyne[29] collected reports of 16 cases of such intussusception. Twenty of Porter's[7] 184 cases were intussusception, and 59 of Wellington's[16] 326. Hertzler and Gibson[15] have recently published a careful review of the subject with the details in abstract of 41 collected cases, omitting others not sufficiently well-reported to permit of study The average age was 13 years, in sharp contrast to the early age at which simple intussusception of the bowel usually occurs. Inasmuch as the invagination of the diverticulum takes place on the lateral aspect of the

20. Rostowzew: Roussky Arch. Path., April, 1902 (quoted by Bienvenue); Beilage zur Praktitschewskaja Medicina, 1907 (quoted by Meyer).
21. Halstead: Ann. Surg., 1902, xxxv, 471.
22. Barnard: Allbutt and Rolleston's System of Medicine, 1907, iii, 770.
23. Strasser: Med. Rec., New York, 1903, lxiv, 933.
24. Fox: Lancet, London, 1898, i, 227.
25. Cawardine: Brit. Med. Jour., 1897, ii, 1637.
26. Beach: Ann. Surg., 1896, xxiv, 484.
27. Sherren: Roy. Soc. Med., 1909-1910, iii, 1; Clinical Section, p. 11.
28. Sutton: Brit. Med. Jour., 1891, i, 343.
29. Cheyne: Ann. Surg., 1904, xl, 796.

ileum, it may not occasion complete obstruction, but merely project into the lumen of the bowel and cause hemorrhage. This hemorrhage is usually slight, and there are none of the symptoms of diverticulitis pointing to this disorder. In other cases intussusception of the bowel promptly follows that of the diverticulum.

8. Still less common than intussusception is *volvulus of the diverticulum, or of the ileum*, depending on the presence of this organ. But 8 of Porter's[7] 184 cases were of this nature. Wellington[16] gives in 326 cases 9 of volvulus of the intestine dependent on Meckel's diverticulum. Very rarely there may be volvulus of the diverticulum without twisting of the bowel. This was seen, for instance, in a case reported by Fox,[24] and in one by Taylor.[30] Cawardine's[25] case of cystic dilatation already mentioned was produced by a volvulus of the base of the diverticulum occurring during fetal life. Volvulus of the diverticulum or of the ileum is more liable to take place if the distal extremity of the diverticulum is attached.

9. *Hernia of the diverticulum* is occasionally seen. This has been studied by Ekehorn,[31] who collected 22 cases, and later by Gray,[12] who has a list from literature of 42 cases. There were others found by Gray, making the number 60 in all, but too briefly reported to be of value for study. Thirty of his cases were inguinal and 12 femoral. The average age was 37 years.

10. *Inflammation of Meckel's Diverticulum* — the subject under special consideration in this contribution — appears to have first been named "diverticulitis" by Blanc[32] in recognition of the analogy which it bears to appendicitis. The first case on record, according to Bienvenue,[19] appears to have been reported by Littré[33] in 1700. The subject has secured meager consideration or none at all in such text-books on medicine or pediatrics as I have consulted. A number of special contributions, however, have appeared in periodical literature or in theses treating solely or largely of this condition. I may refer especially to the theses of H. Blanc,[32] Bienvenue[19] and Ketteler,[34] the volume of Forgue and Riche,[11] and the periodical contributions of Clogg,[10] Rebentisch,[35] Hilgenreiner,[9] Denecke,[36] Meyer,[37] Cahier[38] and Hübschmann.[39] Some of the other writers already mentioned have discussed it to a limited extent.

The condition is one of the more infrequent abdominal diseases depending on Meckel's diverticulum. Ketteler[34] (1900) found 5 cases of diverticulitis; Denecke[36] (1902), 9; Rostowzew[20] (1902), 45; Porter[7] (1905), 17; Cahier[38] (1906), 39; Forgue and Riche[11] (1907), 59; Bienvenue[19] (1912), 40, and Wellington[16] (1913), 50. The variation in the reports depends in part on the date of publication, and in part on the limitations placed by the authors. It is interesting to note the relative tendencies, respectively, of the appendix to exhibit inflammation, and of the diverticulum to produce obstruction. Thus Leichtenstern[40] could collect but 36 cases of occlusion of the intestine by the appendix, while he found 70 cases of occlusion by the more rare Meckel's diverticulum. Inflammation of the appendix, on the other hand, is one of the most common disorders, while that of the diverticulum is of very exceptional occurrence.

The distinction is to be made at the outset between primary and secondary diverticulitis. In the latter some other lesion develops first, as when the diverticulum constricts the ileum and is in turn constricted by it, with consequent inflammation, or as when the diverticulum is strangulated in a hernial sac. In the matter of primary diverticulitis a further distinction is to be made between acute and chronic or recurring cases, and the relationship of diverticulitis to obstruction of the bowel is to be studied. Bienvenue,[19] the author of one of the latest and, perhaps, of the most extensive discussion of diverticulitis, gives as instances of chronic inflammation of the diverticulum those cases in which adhesion of the distal end of the diverticulum elsewhere than the umbilicus has at some previous time formed, as a result, he believes, of an earlier localized inflammation. On this basis he considers that the majority of instances of intestinal obstruction by the diverticulum acting as a constricting band are to be viewed as secondary to diverticulitis. Others, however, among them Forgue and Riche,[11] do not consider that these abnormal adhesions are necessarily or even usually the result of an earlier inflammation. However this may be, the chronic and the acute diverticulitis as now under consideration are quite different from this condition and are rarely the cause of a complete intestinal occlusion.

The *causes* of diverticulitis are obscure. Infection, of course, lies at the basis of the lesion. Previous digestive disturbances appear to have some bearing, and trauma, too, has seemed to have been causative in several instances, as in those of Hübschmann,[39] Kramer[41] and a few others. It should be remarked, however, that Hübschmann does not consider his case an instance of primary inflammation of Meckel's diverticulum, but of the formation of a peptic ulcer in it, following a fissure produced by the trauma, with subsequent perforative peritonitis. The influence of foreign bodies is uncertain. They have been found in a number of instances; but, as with appendicitis, they are not necessarily the cause of the inflammation. This is true also of the occasional discovery of intestinal worms in the diverticulum in cases of inflammation. Cahier[38] found foreign bodies present in 9 of 29 collected cases. Although the disease can occur at any age, the larger number appear to have developed after childhood is passed. Meyer[37] places the age of the majority of patients at from 35 to 70 years, and of Cahier's[38] 36 patients, 16 were from 20 to 54 years of age, one-third of the number being children.

From the point of view of *pathology*, diverticulitis is analogous to appendicitis, and no detailed description of the lesion is necessary. As in appendicitis, all grades of inflammation exist, extending from a mere catarrhal process to gangrene and perforation with localized or general peritonitis. There may be perforation from ulceration without gangrene. This is oftenest the result of typhoid fever. Wellington[16] collected 6 instances of this occurrence, and 2 from trauma. Makins[42] found a diverticulum with 13 perforations. Ulceration from any source is uncommon.

30. Taylor: Johns Hopkins Hosp. Bull., 1901, xii, 326.
31. Ekehorn: Arch. f. klin. Chir., 1901, lxiv, 115.
32. Blanc, H.: Thèse de Paris, 1899.
33. Littré: Mém. Acad. Roy. des sc., Paris, 1719, p. 300 (quoted by Bienvenue).
34. Ketteler: Inaug. Diss., Göttingen, 1900 (quoted by Meyer).
35. Rebentisch: Arch. f. klin. Chir., 1903, lxx, 1015.
36. Denecke: Deutsch. Ztschr. f. Chir., 1902, lxii, 523.
37. Meyer: Deutsch. Ztschr. f. Chir., 1912, cxiii, 346.
38. Cahier: Rev. de Chir., 1906, xxxiv, 338, 550.
39. Hübschmann: München. med. Wchnschr., 1913, lx, 2051.
40. Leichtenstern: Ziemssen's Handbuch der specielle Pathologie und Therapie, 1876, vii, ii, 426, 427.
41. Kramer: Zentralbl. f. Chir., 1898, xxv, 521.
42. Makins: Tr. Path. Soc. London, 1893, xliv, 90.

The *symptoms* vary to a certain extent within wide limits. Cahier[38] found 10 chronic cases with acute recurrence out of 37 instances of diverticulitis. In these more subacute or chronic or recurring cases there exist before the final crisis evidences of gastric disturbances, constipation and recurrent painful attacks oftenest in the region to the right of the umbilicus or in the right iliac fossa. In the primarily acute cases, or in those with an acute development consecutive to the more chronic condition, the symptoms so closely simulate those of acute appendicitis that the diagnosis of the latter condition is generally made. The earliest stages of the disease may be entirely without clinical manifestations. In well-developed cases the symptoms consist in severe abdominal pain, which is liable to be higher and nearer the umbilicus than in appendicitis; abdominal tenderness and resistance, and finally, dulness on percussion in this region; nausea and vomiting; fever and leukocytosis. Constipation is a frequent symptom, but diarrhea is as often seen. In a few cases of a subacute or chronic nature, such as those of Hilgenreiner, Hübschmann,[39] Meyer,[37] and my own, passage of blood from the bowel took place. My own case was most unusual in that the intestinal hemorrhage was for a time the most marked symptom, and was certainly one of the decided causes of the fatal ending. Finally, in diverticulitis there may develop the symptoms of a general peritonitis, as in cases of appendicitis. This is more liable to occur than in the latter affection. The question of intestinal obstruction as a symptom of diverticulitis has already been referred to. It is possible that obstruction may become complete from the compression of the intestine, if the diverticulum is distally adherent, or from inflammatory adhesions or kinking, or in other ways. This is, however, exceptional. More or less difficulty in the evacuation of the bowels is liable to occur in any case of diverticulitis, either from the mere kinking of the coils of the intestine involved in a localized peritonitis, or as a result of paralysis of peristalsis, as seen sometimes in appendicitis. How important a factor the latter may be is uncertain. Cahier,[38] for instance, believes thoroughly in its existence, while Meyer[37] thinks that it plays little part. In cases of secondary diverticulitis, complete obstruction may first take place, and later evidences of diverticulitis may develop, finally with localized or general peritonitis.

The question of the *diagnosis* of diverticulitis is of great interest. Is such a diagnosis possible? It is to be noted that the lesion has never been correctly diagnosed during life, although in a case reported by Karajan[45] it would seem that this might have been made. In this instance there were the symptoms suggesting appendicitis, but occurring in a man who had had in infancy up to the age of 3 years a fistulous opening of Meckel's diverticulum at the umbilicus. In general, the study of diagnosis leads mostly to discouragement. Certainly, at least, the effort to come to a correct conclusion should be made. The fact that the localized inflammation of a diverticulitis is situated most frequently in the lower part of the abdomen and toward the right makes the diagnosis of appendicitis more probable; and, as a matter of fact, most cases of diverticulitis have been thus diagnosed, and the true condition discovered only at operation. In a case reported by Hilgenreiner[6] both diverticulitis and appendicitis were present. The origin of the diverticulum, oftenest at from 1 to 3 feet above the cecum, and its attachment to a freely movable portion of the intestine, make its position in the abdominal cavity a very variable one, and the localization of symptoms is consequently subject to no fixed rule. In the cases of secondary diverticulitis in which complete intestinal obstruction has already occurred, the development of inflammatory symptoms is suggestive but not conclusive, since any form of intestinal obstruction may be followed by signs of peritoneal inflammation. The presence of blood in the stools, although of rare occurrence, is when present, suggestive of diverticulitis; yet this, too, is not conclusive, inasmuch as the symptom is in no way pathognomonic. The diagnostic features as based on the cases reported by different writers may be summarized as follows:

1. Localization of the pain and tenderness not so often at McBurney's point as somewhat higher and to the right of the umbilicus, or even about it, or in some entirely different region.
2. An area of puffiness or of firm resistance in this region.
3. Absence or slight degree of meteorism, at least early in the attack.
4. The presence of blood in the stools and in the vomited matter.
5. The earlier existence of an umbilical fistula, or of some malformation elsewhere in the body.

As regards the *prognosis*, it is impossible to reach accurate conclusions, owing to the fact that catarrhal diverticulitis, recovering, has never been recognized during life; and it is impossible to determine how often such a condition has existed. That a diverticulitis of this sort with recovery does actually occur is shown by operations and necropsies in which evidence of former inflammation has been found. The prognosis of acute severer cases is unfavorable. Cahier[40] found a mortality of 65 per cent. in 35 cases, all those patients recovering having been operated on. In 50 cases of Forgue and Riche's[11] list the mortality was 53 per cent. Wellington[16] estimated the mortality at 40 per cent.

Little need be said of treatment. The only legitimate one is operative. Inasmuch as even a healthy diverticulum is a much greater and more constant menace to life than an appendix in a similar condition, a Meckel diverticulum found in the course of an abdominal operation should be removed.

1810 Spruce Street.

45. Karajan: Wien. klin. Wchnschr., 1901, xiv, 714.

Vaccination in New York—In order to form an idea as to how well the population of New York has been vaccinated, surveys were made of various groups in different sections. Information thus obtained regarding 12,437 persons shows that 12,096, or 96 per cent., had been vaccinated. The average time which had elapsed since the last vaccination was eleven years. Fifty persons, or .04 per cent., had had small-pox and 378, or 3 per cent., had never been vaccinated. Schoolchildren are well protected by vaccination which is required by law. Children under school age, however, constitute a large proportion of the unvaccinated. Of a total of 1,580 children inquired about, 291, or 18 per cent., had never been vaccinated. In a negro tenement block 35 per cent. of the children under school age had not been vaccinated. A campaign has been set on foot to secure more complete vaccination of the entire population.

SUPRACLAVICULAR ANESTHETIZATION OF THE BRACHIAL PLEXUS

A CASE OF COLLAPSE FOLLOWING ITS ADMINISTRATION *

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About three years ago Kulenkampff[1] described a method of anesthetizing the upper extremity by injecting novocain solutions around the brachial plexus in the supraclavicular fossa. In a series of more than 150 cases[2] he found the method very valuable and safe in addition to those employed for inducing anesthesia for operations on the upper extremities. Other observers[3] have also reported favorably on the method, most of them being exceedingly enthusiastic about its possibilities. American publications on the subject have not been seen and it may therefore be permissible to describe the technic of Kulenkampff's method, some modifications, and the results obtained, before detailing a case of collapse following its administration.

The area for the injection of the brachial plexus is the space bounded internally by the subclavian artery, externally and below by the clavicle, in the depths by the upper surface of the first rib. Several guides for the point of introduction of the needle have been described. According to Kulenkampff, the continuation of the line of the external jugular vein, at a point immediately above the clavicle, is the site of election, because the subclavian artery lies internal to this line. Braun[4] finds that the midpoint of the clavicle accurately locates the brachial plexus. There can be no doubt, however, that the subclavian artery should be the sole guide for the introduction of the needle. This is especially emphasized because there may be considerable variation in the position of the subclavian artery, and the use of the other guides may then be disastrous.

If possible, the patient is placed in a semireclining posture. His head is slightly turned away from the side to be injected. According to most observers, the skin at the site of introduction of the needle should be anesthetized. This appears undesirable to me, because the definition of the landmarks may be obscured. A fine needle, about 6 cm. long, detached from the syringe, is employed. The position of the subclavian artery having been unquestionably determined, the needle is introduced immediately external to the vessel at a point directly above the clavicle. The needle is introduced slowly, and directed downward, forward and inward.

The best guide for the path of the needle is the spinous process of the second dorsal vertebra. The latter should be marked on the skin and the needle should be pointed directly toward the mark. In the great majority of instances the brachial plexus is reached at a depth of from 1.5 to 3 cm. There is one unmistakable indication that the needle is at the plexus: paresthesias of varying intensity appear in the hand and arm. They may be in the territory of the median or of the radial nerve distribution, or in both. Under no circumstances should fluid be injected until paresthesias have definitely appeared. Various concentrations of novocain solutions have been advised, the most generally employed being a 2 per cent. solution combined with epinephrin;[5] 20 c.c. are usually injected. If the paresthesias appear in the median nerve distribution alone, the needle should be introduced a few millimeters deeper for the injection of the second half of the fluid. The reason for this is the relatively superficial position of the median nerve in the plexus, at the site of injection.

The first rib lies in the path of the needle at a depth of from 1 to 5 cm. If the needle misses the brachial plexus it should reach the first rib. Under these circumstances the needle must be withdrawn slightly and moved about a little in the effort to incite the typical paresthesias. The latter failing, the needle should be removed for, in avoiding the subclavian artery, it has probably been inserted too far out. There are no recorded cases of injury to the artery, and there is no likelihood of such an injury if the technic described above is closely followed.

The anesthesia of the upper extremity from injection of the brachial plexus is complete in most instances. It begins a few minutes after the injection, with tingling and a sense of heaviness of the arm. The anesthesia generally develops in scattered patches but is complete in from five to thirty minutes. It is accompanied by a paresis of the extremity that is generally in direct proportion to the anesthesia. The loss of sensation involves the upper extremity to within 2 inches of the acromion, but sensation in a small patch along the inner aspect of the upper arm (intercostohumeral distribution) generally remains more or less intact. The anesthesia is of one and one-half to three hours' duration. No sensory disturbances, either local or in the distribution of the plexus, have been observed.

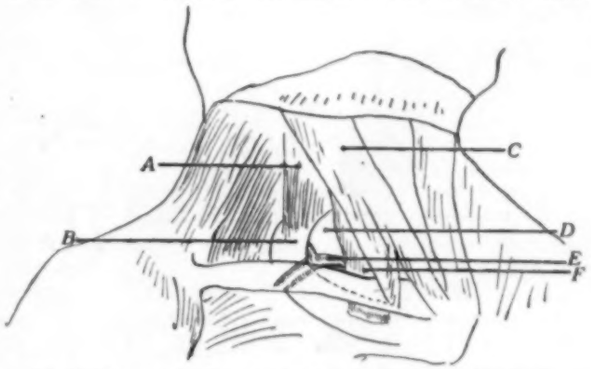

Fig. 1.—Diagram to show the relation of the first rib and the subclavian artery to the clavicle (modified from Kulenkampff): *A*, scalenus medius; *B*, first rib; *C*, sternomastoid; *D*, position of apex of lung; *E*, subclavian artery with transversalis colli; *F*, scalenus anticus.

When the anesthesia is complete, any of the operations on the upper extremity can be done. It is unnecessary to enumerate the various procedures carried out by others and by myself; suffice it to state that all of the major operations have been successfully performed. It is of interest to note that fractures can be reduced and operated on without pain under this anesthesia. Kulenkampff's method would not appear applicable to operation on the shoulder-joint, never-

* From the Surgical Department of the Mount Sinai Hospital Dispensary.

1. Kulenkampff: Zentralbl. f. Chir., 1911, No. 40.
2. Kulenkampff: Beitr. z. klin. Chir., 1912, lxxix, 550.
3. Eberle: Arch. f. klin. Chir., 1912, xcix, 1020. Babitzki: Deutsch. med. Wchnschr., April 3, xxxix, No. 14, p. 652. Neil and Crooks: Brit. Med. Jour., Feb. 22, 1913. Braun: Die Lokalanaesthesie, Ed. 3, Barth, Leipsic, 1913.
4. Braun: Die Lokalanaesthesie, Ed. 3, 1913.
5. The Braun formula for the combination is 1 c.c. epinephrin 1:1,000, to 50 c.c. 2 per cent. novocain solution.

theless several dislocations of the shoulder have been painlessly reduced under brachial plexus anesthesia. Braun[4] reports an exarticulation of the shoulder-joint performed under it, local anesthesia of the skin in the line of the incision being added.

The anesthesia sometimes proves incomplete (in about 15 per cent. of the cases on record) and has even failed completely in a few instances. Nearly all observers agree that the proportion of unsatisfactory results steadily diminishes with increased experience.

Supraclavicular anesthetization of the brachial plexus has not been employed long enough, and the statistics are not sufficiently extensive (about 250 cases are on record) to state its advantages categorically. It appears indicated in all operations and all manipulations on the upper extremity for which local anesthesia, though indicated, cannot be readily and simply administered. Anesthesia of the brachial plexus has an unquestionably beneficial influence on shock. The following will serve as an illustration:

CASE 1.—A patient came under observation profoundly shocked from severely crushed wounds of the hand. Almost simultaneously with the appearance of anesthesia from the supraclavicular injection the signs and symptoms of shock began to lessen and soon were well-nigh gone. The extensive operative procedures carried out on the hand did not effect any change in the greatly improved condition of the patient.

Fig. 2.—Diagram to show the relation of the brachial plexus to the clavicle and the subclavian artery (modified from Kulenkampff): *A*, brachial plexus; *B*, omohyoid; *C*, sternomastoid; *D*, scalenus anticus; *E*, subclavian artery.

Furthermore, several observers believe that shock from operations under brachial plexus anesthesia is much less marked than that from such operations performed under general or local anesthesia; more studies must be made, however, before this can be established definitely.

Except for the statement that supraclavicular anesthesia may be incomplete, nothing has as yet been said of its disadvantages. Temporary paralysis of half of the diaphragm from involvement of the phrenic nerve has been reported several times.[6] In one of these instances the paralysis persisted for more than a month and was accompanied by considerable difficulty in breathing. It appears impossible to determine the type of case in which paralysis of the diaphragm may occur, and I therefore believe that Kulenkampff's method is contra-indicated for patients suffering from pronounced intrathoracic disease. The only other reported complication referable to supraclavicular anesthetization is a single instance of musculospiral paralysis following its administration.[7]. An Esmarch band was employed for the very prolonged operation, and Borchers found it impossible to determine if the paralysis was the result of the anesthetization or of the pressure of the band. No instance of collapse following Kulenkampff's method has been reported and it is therefore thought advisable to present the following case:

CASE 2.—Mrs. F., aged 40, came under observation in the morning surgical clinic of Mount Sinai Hospital Dispensary, April 8, 1913. She had been well except for a stiff and painful shoulder of six months' duration. The thoracic examination being negative, Kulenkampff's anesthesia was planned for the operation. One per cent. novocain with epinephrin after the Braun formula (q. s.) was employed, the solution having been prepared under careful aseptic precautions. The needle was introduced into the right supraclavicular fossa in the typical way and its presence in the plexus determined by the very definite paresthesias complained of by the patient. The brachial plexus was found easily; indeed, at no stage were there any technical difficulties. Ten c.c. of the solution were then slowly injected. Within one minute the patient began to complain of a sense of oppression and wished to lie down. Her color became progressively more pallid and the mucous membranes pale. She went rapidly into a state of profound collapse. The pulse became very irregular, rapid, and poor in quality; at times it was almost imperceptible. The respirations were very labored. The patient vomited several times, coughed occasionally, and expectorated some blood-tinged sputum. She was very restless, and repeatedly expressed a fear that death was impending. Vigorous hypodermic stimulation was resorted to, but this appeared to have very little effect on the collapsed state of the patient. She was therefore transferred to the reception ward of the hospital. Here the foot of the bed was elevated, rectal saline infusion administered, and hypodermic stimulation given each time the heart action became alarmingly weak. About four hours after the supraclavicular injection the general condition began to improve slowly. The patient was then admitted to Dr. Nathan E. Brill's service (the First Medical Division) and I am indebted to him for permission to abstract the following hospital notes of the case: In the night codein was given for restlessness. Twenty-four hours later the condition of the patient approximated the normal. The examination of the heart and lungs was negative. The motor paresis and the cutaneous anesthesia of the right upper extremity had disappeared. There were a few hyalogranular casts, but no albumin in the urine. The patient complained of headache and nausea. April 10 (two days after admission), a slight rise in temperature (100.4) appeared, but was not accompanied by other manifestations. The patient was discharged, free from any after-effects of the collapse, April 12.

The collapse occurring in Case 2 can be ascribed to acute novocain poisoning or to trauma of the brachial plexus. It is generally held that the toxicity of novocain is very low. Braun,[4] in a large experience, has neither seen records nor encountered toxic effects from dilute (from 0.5 to 2 per cent.) solutions of the drug when injected subcutaneously, even when large amounts have been employed.

Symptoms of poisoning have been described, however, from the injection of from 20 to 25 c.c. of 2 per cent. novocain solution into the sacral canal (Laewen,[8] Braun[9]). They consisted mainly in nausea and sweating, pronounced pallor, a small and rapid pulse, accelerated respiration, repeated vomiting and a sense of oppression. These symptoms are paralleled by those of the patient in Case 2 which I have reported. In this connection it is of interest to note that von Gaza and Laewen have used large amounts of dilute (from 0.5 to 4 per cent.) novocain solution for blocking the

6. Sievers: Zentralbl. f. Chir., 1913, xxxvii, No. 10. Klauser and Stein: Ibid., 1913, xl, No. 16. Brunner: Ibid., 1913, xl, No. 28.
7. Borchers: Zentralbl. f. Chir., 1912, xxxix, No. 26.
8. Laewen: Deutsch. Ztschr. f. Chir., 1905, lxxx, 180.
9. Braun: Deutsch. med. Wchnschr., 1905, No. 42.

nerves of the lower extremity. They found that the tolerance was greatly increased by injecting the fluid slowly (over a period of from ten to fifteen minutes). Nevertheless, toxic symptoms appeared in a few of their cases. It was stated in the preceding paragraph that trauma to the brachial plexus may have caused the collapse of the patient. There can be little doubt of a certain amount of injury from injecting from 10 to 20 c.c. of fluid into a close-meshed plexus of nerves. It is well known that external violence applied to the brachial plexus sometimes results in a symptom-complex similar to that of my case. Despite these suggestions for the traumatic origin of the symptoms, it does not appear at all probable that injury was the cause of the manifestations. Were it so, collapse symptoms would be frequently observed. Besides, it is difficult to conceive the trauma profound enough to result in the symptoms in question. If all the fluid were injected into a single nerve-trunk, the trauma would possibly have been sufficient; the complete anesthesia of the arm, however, indicated that fluid was injected about several of the nerves. I must therefore conclude that the collapse of the reported patient was most probably due to acute novocain-poisoning, although trauma cannot be absolutely excluded as the cause.

From the experience of others and my own limited trial of the method it may fairly be stated that supraclavicular anesthetization of the brachial plexus will prove an exceedingly valuable addition to the methods of regional anesthesia when serious complications from its administration can be eliminated.

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BEST METHODS OF DISCOURAGING THE ACTIVITY OF INOPERABLE CANCER

A STUDY OF HEAT IN CANCER *

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Among the earliest of the various procedures used in the treatment of malignant growths is the Chian turpentine advocated by Clay of Birmingham; there has been developed since then the molasses treatment; soap solution and ox-gall; cancroin, a poisonous product of cancer-tissue; thyroid extract; trypsin and amylopsin as strongly recommended by Beard; atoxyl by Skene Keith; Reicher's injection of epinephrin into the tissues about carcinomatous growth; Spiess' "337," an anesthetic not on the market, similar in chemical structure to novocain, by which Spiess obtained brilliant results in the carcinomas of mice, and Uhlenhuth's injection of pyocyanase. And now, among the most promising, at least from the laboratory point of view, are the selenium and tellurium compounds of eosin introduced by Wassermann and based on the fundamental work of Ehrlich. With these can also be considered the use of the colloids of certain metals, especially silver, copper and gold, as described by Caspari, Neuberg and Loeb. Under this general subdivision may also be placed serotherapy, namely, the fetal autolysates of Fischera and emulsions of Levin and Babcock; organ extracts treated by the Roentgen ray and autoserotherapy as described by Hodenpyl and Ill. These methods have excited great interest from the point of view of the experimental laboratory. This has been especially true of the fetal autolysates of Fischera, which, from the scientific point of view at least, have much to commend them.

Among the rest may be mentioned the serum of animals treated with cancer by Jensen; autolysated sarcoma by Blumenthal; epinephrin and antivenin horse-serum of Greenbaum, and defibrinated blood by H. C. Ross and Bier. I purposely omit a bibliography as not being germane to the subject-matter, and would refer the reader to the status of carcinoma therapy as given in the *Reports of the American Association for the Study of Cancer*, 1913.

In spite of our wishes and hopes, all of these methods have proved to be inconstant in their effects, and therefore unreliable and disappointing. From the general agents used in attempts to destroy carcinoma, such as these just mentioned, we can pass to those employed locally. Among the first is probably arsenic, and its history is neither unimportant nor disappointing, although it has been badly used in many instances. With the arsenic, zinc chlorid, calcium carbid and acetone have also been employed.

The Roentgen ray has played an important part in the local treatment of cancer, and it is probable that it is destined to play a greater rôle if the work of Baum of Berlin and that of Kroenig and Gauss of Freiburg holds up its early promise. That the Roentgen ray will inhibit and destroy the carcinoma cell, or germ, under favorable conditions, there can be no reasonable doubt. There remains for the physicist only the problem of making the rays reach in an effective way the most inaccessible regions of the body, the habitat of cancer.[1]

Radium also comes in this category. In reference to this agent, all that can be said at present is to express the hope that at least half the enthusiasm shown by the few who have had the rare opportunity of using it in large quantities will prove to be justified by subsequent results. Various modifications of the electric current also deserve recognition in the local treatment of cancer. With these, as with the Roentgen ray, the problem is also one of sufficient penetration to destroy the pathologic tissue, and leave, with the least amount of damage, the uninvolved tissue-cells. There are many of these methods. The most attractive, and, perhaps, the most promising, is the so-called fulguration method of de Keating-Hart, and also his thermoradiotherapy method. The diathermy system of Nagelschmidt and the electrocoagulation developed by Doyen of France belong to this same type. That these are scientific and based on good theoretical, as well as experimental data, there can be no question.

Finally, we have, as a last hope in the management of inoperable carcinoma, the operative treatment so well set forth by Mr. Cecil Rowntree.[2] The essence

* Read before the Western Surgical Association, Dec. 19-20, 1913.

1. Recently my attention has been called to a new and powerful Roentgen-ray tube devised by W. D. Coolidge, and described in the American Journal of Roentgenology, January, 1914, p. 115. In the same journal, p. 125, Dr. Lewis Gregory Cole gives "A Preliminary Report on the Diagnostic and Therapeutic Application of the Coolidge Tube." He closes his report with the following: "With these forces under control, there is no limitation to the amount of ray at our command, and with the cross-fire method of application and the screen materially increased, there is every reason to hope that we may be able to apply to internal cancers the same amount of x-ray which, when applied to superficial cancers, has caused their immediate disappearance." This statement of Professor Cole leads one to believe that the physicist had already made it possible for "the rays to reach in an effective way the most inaccessible regions of the body."

2. Rowntree, Cecil: Brit. Med. Jour., Sept. 27, 1913.

of this author's paper is the relief of suffering by the excision of the growth as far as possible, without too greatly endangering the life of the patient. Added to this is the expectation that death by metastasis will be more merciful than ulceration and septic absorption.

As already stated above, under the head of general methods, these various procedures, although of the highest scientific interest, are too indirect for consideration in a practical way at this time. In an effort to determine an agent, aside from surgical means, to eradicate carcinoma, numerous observations have been made on the vulnerability of cancer-cells to various physical and chemical agents. In 1905, Haaland,[3] in attempting to obtain artificial purification of mixed tumors, following the suggestion of P. Ehrlich, showed the susceptibility of inoculable material to heat of 44 C. (111.2 F.) for half an hour. Ehrlich suggests that with higher temperatures, fewer and fewer cells survive. Haaland likewise showed that carcinoma-cells succumb before sarcoma. Clowes[4] demonstrated the death of all tumor-cells exposed to a temperature of 45 C. (113 F.) *in vitro*, and called attention to the fact that weak strains of tumors increase in virulence when incubated at from 38.5 to 41 C. (from 101.3 to 105.8 F.), while the opposite is true of strong strains.

Jensen[5] has placed the vulnerability of cancer cells at 47 C. (116.6 F.) for five minutes; Loeb for sarcoma 45 C. for thirty minutes; Clowes and Baeslack 44 C. for thirty minutes.

Lambert[6] has recently pointed out that temperatures above 42 C. (107.6 F.) were distinctly harmful, and that the degree of injury to both normal and cancer-tissue depends on the degree of temperature and length of exposure. He further states that sarcoma-cells are destroyed by exposure to 42.5 C. (108.5 F.) for from twenty-four to forty-eight hours, 43 C. (109.4 F.) for six hours, 44 C. (111.2 F.) for fifty minutes and 46 C. (114.8 F.) for twenty minutes; while normal connective-tissue cells survive these various exposures.

M. Doyen, in proposing the *Micrococcus neoformans* as the cause of carcinoma, showed that the death-point of cancer-cells is from 55 to 56 C. (131 to 132.8 F.), identical with that of the *Micrococcus neoformans*.

E. Vidal[7] noted the arrested evolution of tumors in four patients with a temperature above 40 C. (104 F.). In order to be sure that there was not a quadruple coincidence, he daily exposed tumor-bearing mice to temperatures above normal, and found that they lived longer and that the tumors were the seat of degenerative changes. In a bitch having a spontaneous lymphosarcoma, the zone of Richet was punctured, the temperature rose to 40.8 C. (105.3 F.) and the tumor diminished in size rapidly and finally disappeared some time after this procedure. In this connection Vidal makes the startling and original observation that the methods of treating carcinoma by vaccines and toxins, such as the nectrianin of Bra, Doyen's *Micrococcus neoformans* vaccine, toxins of Coley, vaccine of Otto Schmidt, etc., are all attended by a reaction, the principal symptom of which is an increase of temperature, and when such reaction is absent, the several authors state that there is no salutary influence on the carcinoma. He therefore concludes that these various methods owe their success largely to their fever-producing qualities. It may here be mentioned that Bier[8] has shown that the injection of a foreign defibrinated blood is attended by fever, and it is well known that the intravenous injections of colloidal metals show the same reaction. The various reports of diminution of malignant tumors following infections, such as erysipelas, assume a new significance.

Based on the foregoing experimental data, it is logical that we hope for the eradication of cancerous growths by attacking these morbid processes through their vulnerability to heat. It is immediately apparent that methods tending to raise the general temperature of the body above 104 F. (40 C.) are at times dangerous, always uncertain and beyond the power of regulation. It, therefore, remains to develop a method of applying heat to the tumor mass to a degree of efficiency that will permit of the greatest destruction of carcinoma-cells with a maximum conservation of normal tissue-cells. The methods which may be enumerated to obtain these results are hot air, hot water, electrocoagulation, fulguration and actual cautery. The first two may be readily dismissed, because the penetration of hot water, as shown by Doyen,[9] is from but 4 to 5 mm., and that of hot air is probably much less. Electrocoagulation will produce a coagulation of tissues from 5 to 8 cm. in two minutes, when the electrode is in immediate contact with the tissues. The rapidity of this action, the inability to direct and control the electrode within the cavities, aside from the costly and complicated apparatus required, together with the refinement of technic and specialized judgment of the operator, make this method impracticable in the treatment of the cavity carcinoma.

In considering the de Keating-Hart method of fulguration, a method applicable to superficial growths after their surgical removal, it is not amiss to call attention to the work of Durig and Grau,[10] who show that the effects of the application of high-frequency currents is due to heat alone, and not to any specific action on the tissue-cells. In comparison with the difficulties of the application of the foregoing methods, I have devised a practical method for the application of heat in the treatment of carcinoma that has none of the objections that the various methods already enumerated have. The penetration of the heat by the method to be outlined can be definitely determined and regulated. Its applicability has almost no limitations, when the malignant process is at all accessible; the required apparatus is not expensive, and it is easily portable. The method to which I refer is the application of heat from an electrocautery, accurately controlled by a rheostat, and applied to the affected tissues.

In an effort to determine the degree of heat resulting from the application of the heating-irons for varying periods of time, the following experiments were performed:

3. Haaland, M.: Imperial Cancer Research Fund, Third Report, 1908.
4. Clowes, G. H. A.: Brit. Med. Jour., December, 1906.
5. Jensen, Loeb, Clowes, Baeslack: Quoted by Clowes: Annual Report of New York State Cancer Laboratory, 1910.
6. Lambert, Robert A.: Demonstration of the Greater Susceptibility to Heat of Sarcoma Cells as Compared with Actively Proliferating Connective-Tissue Cells, The Journal A. M. A., Dec. 14, 1912, p. 2147.
7. Vidal, E.: Travaux de la Deuxieme Conference Internationale pour L'Etude du Cancer, Paris, 1911, p. 160.
8. Bier: Deutsch. med. Wchnschr., July 18, 1907, No. 29.
9. Doyen: Quoted by Bainbridge, William Seaman: International Clinics, 1913, iii, 280, S. 23.
10. Durig, A., and Grau, A.: Der Energieumsatz bei der Diathermie, Biochem. Ztschr., 1913, xlviii, 480. Quoted in The Effects of High-Frequency Currents, editorial, The Journal A. M. A., May 31, 1913, p. 1907.

EXPERIMENT 1.—Into a mass of fresh, tightly bound beef 7 inches in diameter and 6 inches thick, the largest electric cautery was allowed to burn its way under pressure. Two thermometers were forced into the mass at 1 and 2 inches' distance from the cautery, respectively, and the cautery was allowed to act continuously at constant heat for seventy-five minutes. Cross-section of the mass following the experiment showed just outside the area of actually destroyed tissue (charcoal) an area of coagulated tissue ¾ inch thick, and to the outer side of this, an intermediate pale grayish-pink zone ½ inch thick. In every instance the latter area was found to be to the inner side of the thermometer, which registered 55 C. (131 F.).

EXPERIMENT 2.—A similar cautery was forced into a mass of tightly bound beef-muscle measuring 3½ by 3½ by 3 inches, and allowed to act continuously at constant heat for sixty minutes, and with a thermometer placed in the mass at a distance of 1½ inches from the cautery. Cross-section of the mass then showed a coagulated zone ⅜ inch thick, and an intermediate zone ¼ inch thick. Thus there is seen the actual destruction of a mass of tissue measuring 2⅜ by 2⅜ by 3 inches.

In both of these experiments, frequent thermometer readings showed an almost constant rise of 0.5 degree C. per minute in the tissue within from 1 to 2 inches of the cautery.

EXPERIMENT 3.—The cautery, heated to a bright cherry red, was allowed to act for ten minutes within a mass of tightly bound beef-muscle. At the end of this time, cross-section showed a coagulated zone ¼ inch wide, and an intermediate zone ⅛ inch wide. This experiment illustrates most graphically the inhibition by the charcoal core of the dissemination of heat. High degrees of heat in the cautery head thus defeat the purpose of this technic, through the formation of an almost impenetrable carbon barrier. It is well to emphasize here the importance of Experiment 5, in which the tissues were not carbonized by high degrees of heat, with a resulting coagulation of the tissues throughout a far greater area.

EXPERIMENT 4.—This was the same as Experiment 3, with the cautery acting for thirty minutes. Cross-section then showed a coagulated zone of ¼ inch, and an intermediate zone of ¼ inch.

In all of the foregoing investigations, it is to be emphasized that the cautery was inserted hot, and allowed to act under high heat.

EXPERIMENT 5.—From the center of a mass of tightly bound beef-muscle 2½ inches in diameter and 3 inches thick, a core ½ inch in diameter was bored out. Into this the cold cautery was inserted and allowed to remain at a heat too low to cause charring of the tissue, for sixty minutes. At the end of this time, the entire mass was hot, and cross-section showed complete coagulation throughout the mass.

EXPERIMENT 6.—In this experiment, a mass of beef 3 by 3 by 4 inches was used, the object being to determine the time necessary entirely to destroy this mass by the cautery heat, combined with external pressure by forcing the tissue on the cautery, in this way stimulating the actual operation in my technic of applying heat to a carcinomatous uterus. The mass was held in the hands of an assistant, who exerted constant pressure toward the cautery acting at high heat within the mass. At the end of twenty-eight minutes, the entire lump was too hot to be held in the hands, and section showed nothing left but a charcoal shell surrounded by a rim of well-cooked coagulated tissue ⅜ inch in thickness.

EXPERIMENT 7.—From a large mass of beef-muscle, a core ¾ inch in diameter was bored and lined with a rubber glove. The opening of this cavity was then closed by a cork containing an inlet and a smaller outlet. To the inlet was connected an irrigator containing cold water, which was allowed to flow through the cavity in the meat. The heated cautery was then plunged into the mass at a distance of ½ inch from the cavity in which the cold water was flowing, and allowed to act for thirty minutes.

The object of this investigation was to determine the effect of cold water within a cavity in protecting directly contiguous tissue from coagulation by the heat from the cautery. Cross-section of the mass showed complete coagulation of all the tissue between the cautery and the cork inserted into the cavity, but a zone of unharmed tissue ⅛ inch wide along the edge of the water-cooled cavity.

From the foregoing experiments several important facts may be deduced. The temperature within the mass of tissue, measured at a distance of from 1 to 2 inches from the outside of the heating-iron, rose 0.5 degree C. per minute, the rheostat reading high. This fact affords a method for the relative measurement of heat during the cautery operation. The time of exposure and reading of the rheostat being the factors considered in the calculation. It will be seen that a considerable area of tissue, far beyond the zone of coagulation, was heated to a degree sufficient to kill carcinoma-cells.

The penetration of heat into a mass is dependent on the following factors: (1) the density of the mass; (2) the compression of the mass on the cautery; (3) the degree of heat developed and length of exposure, and (4) the type of entrance made for the cautery.

Experiment 5 shows in a startling manner that if a charcoal core is avoided, the area of coagulation far exceeds in size that ensuing from the application of greater heat for a longer period of time. In this experiment the cross-section shows that without carbonization, coagulation is produced 2½ inches in all directions from the surface of the heating-iron, the heat being applied for sixty minutes. When the iron was heated to a degree at which carbonization was produced, as in Experiment 2, again for sixty minutes, coagulation was produced for only ⅜ inch, and an intermediate zone of ¼ inch, making a total penetration of the heat into the beef mass of only ⅝ inch, in contrast to Experiment 5, with a much lower degree of heat, of 2½ inches from each side of the heating surface.

This emphasizes the caution which I have advanced on former occasions, not to produce too great a heat in the heating-iron; it is far better to develop a heat below the degree of carbonization, and allow it to act for a long time. As can readily be seen from these experiments, there are two methods by which a carcinomatous mass may be destroyed: first, that illustrated in Experiment 6, in which, with the heating-iron at high temperature, the mass is burned up, every angle being pressed on the cautery head by an assistant, and second, that illustrated by Experiment 5, in which the tissue is not burned up, but destroyed by the production of heat below the point of carbonization. Both procedures have a place in the operation. When a small, circumscribed and well-defined growth, unattended by pelvic metastasis, is present, the first method may well be used, particularly as a preliminary measure. When, however, the pelvis is filled with the cancer growth, the first method should not be employed, because the primary carbonization, I repeat, prevents in a remarkable way the dissemination of heat necessary to effective treatment of the cancer mass. In other words, the successful treatment of cancer depends more and more on the question of heat, and less and less on the effects of cauterization. There is another important consideration, which

should guide us in reference to the prevention of the formation of the charcoal core at the point of contact with the cautery, namely, drainage. The charcoal not only prevents the scattering of the heat, but also interferes with subsequent drainage, which is a most important factor in the successful management of these cases. When the drainage is not adequate, the patient is in danger from absorption of the products of large quantities of killed cancer-cells. Wassermann has already called attention to this in the destroyed tumors of mice. He has shown that if the destroyed tumor in these animals was as large as, or larger than, a hazelnut, the animal died from intoxication from the lytic cancer-cells. If, however, the tumor was the size of a large pea, this result did not follow when it was destroyed. In two of my cases, I have observed intoxication of this character. In both of these cases the pelvis was full of secondary carcinoma following panhysterectomies. The heat was applied through the vagina, and in both instances there was a perfect primary recovery. After four days, however, each of these patients showed signs of failure, which was expressed by extreme weakness, which could not be explained by any local findings. There was also a rapid and weak heart-action, associated with syncopal attacks, vomiting, marked stupor and finally an acidosis. The second method is much more effective, carried out for a period of time varying with the size of the mass; the heat radiates from the heating-iron in a circumferential manner and penetrates the tissues as outlined in the foregoing experiments.

The scope of this paper and the tenor of its contents does not permit of a description of the various steps of my operation, the indications, contra-indications and the immediate, together with the final results. Permit me to refer to my two previous articles on this subject for this data.[11]

CONCLUSION

It has been my purpose to try to point out, through the medium of this paper, the widening of the field of investigation regarding the vulnerability of the cancer-cell to the effects of heat. It will be of particular interest to make further observations as to the relation of the reaction, producing heat in the body, following the injection of toxins, serums and vaccines in the destruction of carcinoma. If the primary gross mass of cancer which is usually accessible can be rendered innocuous by raising the temperature through the medium of an electic heating-iron, and the remaining small amount of lymphatic involvement be reached by thermic-raising, artificially produced toxins, serums or vaccines, as is emphasized by Vidal, then the dream of the ages, on the part of the physician, of doing something with cancer, will be on the road of realization.

Finally, it becomes necessary to develop the application of heat by a method which is at once efficient and harmless, and I believe that I have done this by the technic which I have developed. I believe, further, that I have accomplished this in such a way as to make it highly probable that many forms of carcinomatous growths may be eradicated.

11. Percy, James F.: The Results of the Treatment of Cancer of the Uterus by the Actual Cautery, with a Practical Method for Its Application, THE JOURNAL A. M. A., March 9, 1912, p. 696; A Method of Applying Heat Both to Inhibit and Destroy Inoperable Carcinoma of the Uterus and Vagina, Surg., Gynec. and Obst., September, 1913, p. 371.

DEEP WOUND OF BRAIN

F. H. GUNN, M.D., AND H. C. FAIRBROTHER, M.D.
EAST ST. LOUIS, ILL.

G. R., a Greek, aged 35, blacksmith, of robust physique, while engaged in a fight with another Greek, Dec. 27, 1913, received a stroke with an ordinary chopping-ax. As shown in the accompanying illustration, the head was literally split wide open. The skull was severed back to the coronal suture, and forward through the malar and superior maxillary bones down to the alveolar arch. The brain was severed about 1 inch to the left of the median line, through the frontal lobe back to a point near the fissure of Rolando. The left eye was cut through near the center. The patient was brought into the hospital, the head shaved and cleaned, the eye removed, the incision closed and secured with sutures and adhesives, and absolute rest enjoined. Perfect recovery followed without an untoward symptom. In five weeks the patient returned to work, and up to the present time, a period of three months, he has complained of no unfavorable symptom except occasional insomnia.

Patient after recovery from deep wound of brain.

The Increase in the Number of the Insane.—Interesting statistics have been recently published by Dr. Magnan, head of the examination service of St. Anne's asylum, and by Dr. A. Fillassier, head of the statistics department of Paris, on the insane of the Department of the Seine.

During the period between 1871 and 1880, inclusive, the total number of cases of insanity in the Department of the Seine was 27,169. From 1881 to 1890, the cases furnished by the department numbered 41,288. During the third decennial period, from 1891 to 1900, the number of insane rose to 42,138. Finally, between 1901 and 1910, 43,035 cases of insanity were registered. Alcoholics formed more than a fourth of the number of insane. Of the 89,728 total admissions between 1887 and 1911 the number of alcoholics was 27,315.

The number of relapses, according to Magnan and Fillassier, is very high: in 1911, 15.3 per cent. for the men, and 11.3 per cent. for the women. Many of the relapses are due to alcoholism. Sometimes the cases are merely those of alcoholics who return to drinking, sometimes of degenerates who, from the effect of the poison, become insane anew. Among the exceptional relapses were those of some patients who entered St. Anne's fifteen, sixteen and seventeen and even forty times because of the abuse of intoxicants.

Of all the methods applied for the treatment of the various cases of insanity, Drs. Magnan and Fillassier believe that confinement to bed is the one which gives the best results. This method constitutes a considerable step in advance in the therapeutics of mental diseases. By confinement in bed the acute deliriums are improved, arrested and cured. Since 1897 a considerable diminution of suicides has been observed among men, and there have been none in the women's division. The amelioration of the maniac and melancholic condition is constant and often rapid. For the alcoholic, nothing can equal the value of confinement to bed.

New Instruments and Suggestions

ACROMION AUSCULTATION: A NEW AND DELICATE TEST IN THE EARLY DIAGNOSIS OF INCIPIENT PULMONARY TUBERCULOSIS

FRANK A. BRYANT, M.D., NEW YORK

The early recognition of physical signs in incipient pulmonary tuberculosis is a factor of such importance that the discussion of a new method of detecting conditions which produce slight pneumatic changes in lung-tissue should prove interesting.

The primary lesion in tuberculosis of the lungs is, as a rule, in one of the upper lobes (American System of Practical Medicine). In 427 successive cases of pneumonic tuberculosis examined at the Johns Hopkins Hospital, the right apex was involved in 172, the left in 130, and both in 111. This leaves only 14 cases out of 427 in which the initial lesion was elsewhere than at the apices.

It may be stated that phthisis in this locality is practically always caused by the aspirated tubercle. In this method of infection the tuberculous nodule is usually deposited just where the bronchiole loses its cartilaginous quality, becomes membranous and narrows down to enter the aveoli. Almost immediately (Osler, in Loomis-Thompson's Practice of Medicine) cell proliferation and tissue changes begin so that as early as the fifth day after infection, variations in the lumina of the air passages are sufficient to cause changes in the pitch of the respiratory note and prolonged expiration.

This early mechanical change in the walls of the smaller air-passages explains how by means of auscultation alone the very earliest evidences of infection and infiltration may be obtained, long before such a condition could be detected by percussion, cough, pallor, nocturnal perspiration and the more common signs by which lung tuberculosis is ordinarily diagnosed.

A new and delicate method of auscultation to which I desire to call additional attention and which has been described by Robert Abrahams and Nathan Magida, is called acromion auscultation (Abrahams, Robert: Auscultation at the Acromion Process: Its Significance in Apical Disease, *Arch. Diagnosis*, April, 1913. Magida, Nathan: Acromial Breathing as an Aid in the Diagnosis of Apical Pulmonary Tuberculosis, *New York Med. Jour.*, 1913, xcviii, 1261). It is, as its name implies, a process of listening with a bell stethoscope (or stethophone, as some prefer to call this instrument) over the acromion processes of the scapulae and particularly over the clavicular-acromion arthroses. It is of such significant service in ascertaining the very earliest signs of the invasion of pulmonary tuberculosis, that I believe it should be given a high place among the classical and recognized signs of this disease, and command the attention and respect which its useful character deserves.

ACOUSTIC PRINCIPLES

Acromion auscultation is based on the principles involved in the production and transmission of sound. It is a fundamental law of physics (Avery, E. M.: Elements of Natural Philosophy) that all sound may be traced to the vibration of some material substance. The sounds heard by direct auscultation over lung-tissue are produced by vibrations or movements of air, and occasionally mucus, within its substance. As a medium for the transmission of these vibrations in acromion auscultation, we have, first, the clavicles. It is worthy of note that the name is derived from the Latin word for key, inasmuch as they help to unlock some problems in the physical examination of the upper chest.

The clavicles, on account of the connection at their inner ends with the manubrium and first ribs, whose posterior surfaces lie directly over lung-tissue, and with their own inner concave surfaces lying across and on the apices of the lungs, act like the sounding-board of a musical instrument whose office is to greatly increase the intensity of the original vibrations.

Sound waves produced in the lungs are thus picked up, and traveling longitudinally through the long axes of these bones, are, according to a principle in acoustics, reenforced by the blending of similar waves and sympathetic vibrations. As in the case of the violin, the result is an intensification and even increase in volume of sound at their acromion ends.

This multiplication of sound at the acromion is analogous to the fact that a tuning fork can be heard much louder if it be placed against the end of a rod whose opposite end is held against the ear. Another familiar illustration of such bone conductivity is the increased resonance heard as the razor in shaving glides over the rami of the inferior maxillary. The telephone is another extensive example of the same principle.

The same conditions and principles which apply to the clavicles anteriorly obtain in the relation that the large resonant surfaces of the upper portion of the scapulae bear to the lung-tissue which they cover and to the acromion processes. It is apparent, therefore, according to physical laws, what effective collectors, intensifiers and transmitters of adventitious apical sounds these two bones may become.

METHOD OF USE

The manner of its use is exceedingly simple. The bell of an ordinary stethoscope should be placed as nearly over a point corresponding to the junction of the clavicle with the acromion process as possible. The effect of ordinary respiration should first be observed, after which the patient should be told to deepen the natural breathing, to count, to whisper or to cough, according to whichever sign it is sought to make available, as in the direct auscultation of the apices.

If the anterior portion of an upper lobe be suspected, the examiner should then stand at the side of the patient and endeavor to cover with the stethoscope a portion of the outer or external end of the clavicle by applying the bell of the instrument as nearly as possible in conformity with its long axis.

This manner of applying the stethoscope is recommended because the inner end of the clavicle, articulating as it does with the manubrium and first rib, and being bound firmly to the rib by the aponeurosis of the subclavius muscle and the costoclavicular ligaments, forms a fairly broad, compact resonating surface in direct contact with the anterior portion of the upper lobe and its apex. This resonant mass of bone and fibrous tissue acts as a collector of sound-waves, which it transmits longitudinally outward along the clavicle to its acromial end.

If the posterior portion of the upper lobe or its apex is to be tested, the examiner should stand in front of the subject and place his instrument on and as nearly over the tip of the acromion process as he can. In this locality the supraspinous fossa above and the under surface of the great shell-like subscapular fossa below spreading out over this region, lying on the posterior surfaces of the upper ribs, which in turn through their pleurae come into contact with lung-tissue beneath, act as other resonators, gathering up, intensifying and transmitting sound impulses to the listener's ear at the acromion.

While the chief use of acromion auscultation is to be found in its use in the incipient stage before emaciation has taken place, yet it is desirable occasionally to use it in later stages of the disease and when there has been a loss of flesh. This often leaves the bony prominences of the shoulder so uneven that the bell of the stethoscope cannot be adjusted readily to the contour of the shoulder in a manner to exclude the external air.

At first a soft rubber bell was used on the stethoscope, but that absorbed the sounds to such an extent that its use had to be abandoned. Later I found that the ordinary hard rubber or metal bell could be used on these bony shoulders by simply drawing up the loose skin and tissues around the mouth of the stethoscope with the fingers of the disengaged hand sufficiently to make an air-tight adjustment. Care must be taken, however, to keep this skin cushion motionless, or else extraneous and confusing sounds will be heard.

Rarely, slight friction sounds produced by a movement of the parts in the clavicular-acromion arthrosis may be heard, and on account of their similarity to those of mucus râles and clicks, caution must be used to differentiate and exclude such sounds from those originating in the lungs. I would

suggest that cases for examination at first be chosen from those which have already been diagnosed by other means as being tuberculous. For those unaccustomed to this method of examination, like the early study of heart murmurs, it will give greater satisfaction and confidence to begin the investigation with a known condition as a working hypothesis.

The bell stethoscope must always be used, because the phonendoscope, on account of its flat surface, cannot be adjusted to the rounded and sometimes bony prominences of the shoulder-joint.

ADVANTAGES

The primary and most valuable feature of this new method of auscultation is in its being an early indicator of apical invasion. Its basic principles are well adapted to collecting and transmitting to the ear pathognomonic sounds about the apices due to changes in the walls of the infundibula earlier in the history of the disease than they can be elicited in any other way.

In addition to this it is useful in determining the stage of the disease. In a stated number of cases of all stages of lung tuberculosis examined, acromion breathing was heard in all of the first-stage cases, in 57 per cent. of those in the second stage, and in only 2 per cent. of the third-stage cases. I have found it useful also in young, plethoric persons, in whom the presence of pathogenic bacilli is apt to be made known first by hemoptysis. In this class of cases there is frequently so much fatty tissue and muscle over the apices that little or nothing can be learned by direct auscultation or percussion. In such cases the value of acromion auscultation is emphasized.

62 West Fortieth Street.

MARCHI TECHNIC: SAFER AND EASIER CLEARING AND MOUNTING OF CELLOIDIN SECTIONS*

H. S. STEENSLAND, M.D., SYRACUSE, N.Y.

This communication is presented on the assumption that, at present, chloroform is generally regarded as the best clearing reagent for Marchi celloidin sections. It is generally recommended that Marchi celloidin sections be cleared in chloroform and mounted in chloroform balsam because xylol and other clearing reagents, and xylol balsam, cause the black osmic acid staining of fat to fade. Clearing in chloroform, as recommended, presents certain well-known difficulties in technic. These difficulties sometimes make the fate of valuable material uncertain, for example, material that has been obtained as a result of painstaking and time-consuming experiment.

Obviously it would be a great advantage if such sections could be cleared in oleum origani cretici. The technical difficulties dependent on chloroform clearing would be overcome. There would be no danger of drying and shriveling of the sections. The sections could be thoroughly blotted and flattened with smooth (not embossed) filter-paper. The chloroform balsam could be carefully applied. The retraction of the balsam, on drying, from a part of the space between the cover-slips and the slides would be practically done away with. Dr. Mallory has informed me that this retraction can be still further guarded against by completely covering the sections on the slides with chloroform balsam and then allowing it to evaporate to a proper thickness before putting on the cover-slips. It would be possible to turn over valuable material to a technician for clearing and mounting with much less fear of loss of material and without placing undue responsibility and strain on the technician, especially in the case of large serial sections.

Marchi celloidin sections were placed in a dish of oleum origani cretici. Sections of Zenker-fixed tissue stained in hematoxylin and eosin were placed in another dish of the same oil. Oleum origani cretici is probably the most widely used clearing reagent for hematoxylin- and eosin-stained sections. At intervals, sections from each dish were mounted, the Marchi sections in chloroform balsam and the hematoxylin and eosin sections in xylol balsam. In the Marchi sections no evidence of fading was found after seven weeks in the oil. On the other hand, the hematoxylin and eosin sections had obviously faded.

Further, a large number of Marchi celloidin sections were mounted. The technic made use of was the usual technic except that the sections were cleared in oleum origani cretici instead of chloroform. At the end of ten years these show no evidence of fading on comparison with controls. The controls consist of new sections cut from the same set of blocks from which the oil-cleared sections were cut ten years ago. These control sections were cleared in chloroform.

Dr. Mallory has kindly examined the various sections mentioned above and has confirmed the observations.

CONCLUSION

Oleum origani cretici is a very much safer and easier clearing reagent than chloroform for celloidin sections to use in the Marchi technic. It is a safer clearing reagent for Marchi sections than it is for hematoxylin and eosin sections.

* From the Department of Pathology, Syracuse University, College of Medicine.

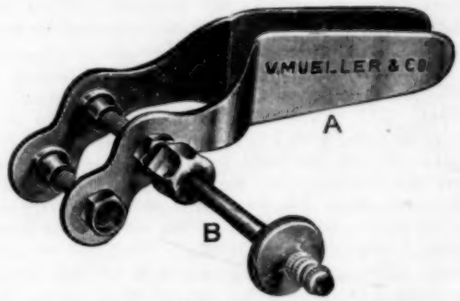
A NASAL SPLINT

E. P. HALL, M.D., KANSAS CITY, MO.

The suffering of the patient whose nasal chambers are tightly packed with gauze for the twenty-four to forty-eight hours following the submucous resection of the septum must be a consideration which presents itself to the mind of the rhinologist when advising this otherwise excellent procedure. The obstruction to drainage of the nasal secretions except by seepage through thoroughly saturated sponges; the absence of oxygen with its bacteria-inhibiting power and consequent protection against increased virulence of existing sinusitis, and the possibility of direct infection of the wound are conditions all against surgical principles, and condemn this method.

A satisfactory nasal splint would be one to hold the flaps securely in position, to prevent hemorrhage, to offer no obstruction to discharge of nasal secretions and to permit free nasal respiration. The instrument here illustrated, when applied in the manner described, I have found to meet these requirements.

When the operation is completed, a strip of Bernay's sponge three or four layers in thickness, cut to size of blades or a trifle wider, is placed on both sides of the septum and the blades of instrument are guided into position over these



Nasal splint.

strips. The blades of the splint are not screwed tightly against the flaps, for the intervening packing affords the necessary elasticity to the splint to provide for the edema of tissue and to fix it immovably in position.

An adhesive-plaster strap is wound once around connecting bars and carried along the bridge of the nose to the forehead; this, with a cross-strap over the bridge, supports the weight of the extra nasal end of the splint. The screw-heads are grooved for insertion of a key to assist in turning the cogs to separate the blades when secretions and blood have cemented the working parts together.

Triangular plates held to grooves in the blades of the splint can be placed in position, taking care of a high operation should it be found necessary to support the entire flap.

The instrument may be so constructed that the blades are placed in position separately and then locked together. This is a later development of the device and preferable in that it is much easier to insert and remove without discomfort to the patient.

My experience justifies a recommendation of at least forty-eight hours for the length of time to leave the splint in position.

Models of this instrument are in the hands of V. Mueller & Co., Chicago.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

THIOCOL AND SYRUP THIOCOL, ROCHE

Report of the Council on Pharmacy and Chemistry

The following report, explaining the readmission of Thiocol and Syrup Thiocol, Roche, to New and Nonofficial Remedies, was adopted by the Council and authorized for publication.

W. A. PUCKNER, Secretary.

Seven years ago the Council accepted Thiocol for inclusion with New and Nonofficial Remedies (THE JOURNAL, Dec. 22, 1906, p. 2093) and later also a preparation of it, Syrup Thiocol, Roche (THE JOURNAL, Dec. 3, 1910, p. 1980.) About a year ago the Council learned that a preparation called Sirolin, containing Thiocol as its effective component, and practically the same as Syrup Thiocol, Roche, was being advertised to the public both in this country and abroad under grossly exaggerated claims. The Council directed that the matter be brought to the attention of the American agent for Thiocol preparations, the Hoffmann-LaRoche Chemical Works. This was done.

The agent's reply contained no promise that advertising in the lay press would be discontinued. As the Council holds that the advertising of medicinal products to the public is vicious in that it tends to encourage self-medication and the establishment of false security on the part of the public, the Council voted that Thiocol and Syrup Thiocol, Roche, be omitted from New and Nonofficial Remedies (THE JOURNAL, June 21, 1913, p. 1974).

Recently the following was received from the Hoffmann-LaRoche Chemical Works, New York:

"All popular propaganda for Sirolin has been abandoned in Germany, Russia, Great Britain and the United States and there never has been any popular propaganda of Sirolin in France. We can at the same time state that there will not in future be any popular advertising or popular propaganda of any sort in behalf of Sirolin in the United States, Germany, Russia, Great Britain or France."

In view of the foregoing letter the Council has voted that Thiocol and Syrup Thiocol, Roche, be readmitted to New and Nonofficial Remedies.

NEW-BORNYVAL.—Neo-Bornyval.—New bornyval is borneol isovaleryl glycolate, $(CH_3)_2$:CH.CH_2COO.CH_2.COO.$C_{10}H_{17}$, the isovaleryl glycolic acid ester of borneol.

Actions and Uses.—New bornyval is more resisting to the gastric juice than bornyval, and is said to pass the stomach without decomposition and on this account it is said to be less irritating to the stomach than bornyval. In the intestine it is decomposed into borneol, and the salts of valeric acid and glycolic acid.

The actions and uses of new bornyval are similar to those of bornyval or to preparations of valerian. It is said to be useful in the various neuroses, especially those of the circulatory, digestive and central nervous systems.

Dosage.—From 0.25 to 0.75 Gm. (4 to 12 minims) from two to four times daily. It is best given after meals with some milk, coffee or similar drink to avoid eructations.

Manufactured by J. D. Riedel, Aktien Gesellschaft, Berlin, Germany (Riedel and Co., New York). No U. S. patent. U. S. trademarks Nos. 41,917 and 56,450.

New Bornyval Pearls.—Each capsule contains new bornyval, 4 minims.

New bornyval is prepared by heating equivalent amounts of borneol chloracetate with salts of valerianic acid and subsequent purification by distillation *in vacuo*.

New bornyval is a colorless, nearly tasteless and odorless, oily liquid, insoluble in water, readily soluble in alcohol, ether, benzene and fatty oils. The alcoholic solution is neutral to litmus. It has a specific gravity of from 1.025 to 1.030 and boils at 181 C. at 12 mm. pressure, and from 283 C. to 285 C., with decomposition, at 760 mm. pressure.

If about 6 Gm. new bornyval be saponified by boiling for one hour with from 50 to 100 Gm. of an alcoholic solution of potassium hydroxid (10 per cent.) under a reflux condenser, the alcohol distilled off, and the remainder distilled with steam, crystals will be formed in the condenser which, after recrystallization from petroleum ether, may be identified as borneol by their appearance, odor and melting-point. If the liquid from which the borneol was distilled be made acid and heated, the odor of isovalerianic acid will be apparent.

Therapeutics

SOME OVERLOOKED CAUSES OF CHRONIC ILLNESS

Misdirected treatment is unfortunate, for both the patient and the physician; the former loses time and comfort, if not health, and the latter loses the patient. Consequently, a brief reference to some of the conditions in which the etiologic factors are sometimes overlooked, and therefore the treatment wrongly directed may not be amiss.

LINGUAL TONSIL COUGH

A congested lingual tonsil as the cause of a troublesome, dry cough is frequently overlooked. This is a common condition, and may occur without bronchitis, tracheitis or laryngitis. It may also occur without a pharyngitis, although it is frequently associated with it. It is frequent in cigarette smokers, and more or less in all smokers, but often occurs in patients who do not smoke. If a person has had this trouble once he is likely to have it recur with every cold. It not infrequently happens that a patient is suspected of having incipient tuberculosis, just because he has a lingual tonsil cough, especially if the hard, rasping cough has produced a blood-tinged mucus. Such a cough is generally worse when the patient lies down, is precipitated by any change of temperature from the house to out-of-doors, or vice versa, from a warm room to a cold room, or the reverse. It is also precipitated by laughing. If the cough begins there is a shower of coughs, until the patient has literally scraped the part irritated, much as one scratches an itching spot until it almost bleeds. The cause of this cough is quite generally referred by the patient to a tickling well down under the sternum. The patient may not always have a cough from lingual tonsil irritation, but may complain of a burning sensation which he may term "heartburn."

The diagnosis of the condition is readily made by the use of the laryngoscope, when the lingual tonsil at the base of the tongue will be found, many times, red and inflamed, sometimes heavily coated, and at other times with large papillae projecting from the mucous membrane.

Emphasis should be laid on the fact that cough mixtures will not cure this cough. It is true that some gummy, gelatinous, sweetish, thick, syrupy preparations may so coat the lingual tonsil when they are

swallowed as to ease the cough for a time; but what becomes of the poor stomach from such medication? Gargling may not reach this region; only patients who have been educated to do so can gargle to wash the lingual tonsil. Gargles should always be ordered, however; they will at least soothe the rest of the throat. Efficient gargles are the liquor antisepticus alkalinus of the National Formulary, which should be diluted with an equal part of hot or warm water; or a Seiler's tablet solution, one tablet dissolved in 2 or 3 ounces of warm water; or a simple and efficient gargle may be made by adding one-fourth of a teaspoonful of bicarbonate of soda and one-fourth of a teaspoonful of salt to half a glass of warm water. Another useful gargle is the following:

	Gm. or c.c.	
℞ Acidi borici	2	ʒ ss
Potassii chloratis	5	ʒ i
Aquae menthae piperitae	200	fl ʒ vi

M. Sig: Use as a gargle every 3 or 4 hours.

At times when the throat is flabby, a tannic acid gargle is of value, such as:

	Gm. or c.c.	
℞ Acidi tannici	3	gr. xl
Glycerini	10	fl ʒ ii
Aquae gaultheriae q.s. ad	200	fl ʒ vi

M. Sig: Use as a gargle twice a day.

Of course, sedative cough mixtures containing codein or heroin are of benefit in reducing the irritation of the nerves of the throat, and ammonium chlorid will stimulate the mucus secretion and perhaps, sooner or later, also help the condition, but as above stated, such treatment seems unnecessary and is generally unsatisfactory in this kind of a cough. It is generally much better to give no medicine at all by the stomach. If the throat is dry, small doses of sodium iodid given three times a day will increase the mucus of the pharynx and lingual tonsil region and may aid in curing this cough.

The proper and only satisfactory treatment is by local applications. This irritated glandular tissue should be swabbed daily for a few times with boroglycerid, or less frequently with a solution of iodin such as:

	Gm. or c.c.	
℞ Iodi	1	gr. xv
Potassii iodidi	3	gr. xlv
Glycerini	30	fl ʒ i

M.

The patient should understand that if he wishes to recover quickly from his cough, daily visits to his physician will accomplish more in a week than will three months of intermittent treatment.

DISTURBANCES OF THE THYROID

The most familiar condition of hypersecretion is Graves' disease, and the condition that is so readily diagnosed as serious hyposecretion, namely, cretinism and myxedema, is also well understood; but disturbances which may be caused by a small amount of hypersecretion or hyposecretion of the thyroid, are not so readily recognized.

It should not be forgotten that this gland may hypersecrete or hyposecrete in all degrees, or the gland may have some portions of its secretion increased and others diminished. In this last condition the disturbance that it causes is very hard to overcome, as inhibiting the thyroid activity on the one hand, or feeding thyroid on the other, is not likely to effect a cure. Disturbances caused by too much or too little secretion and not by a mixed condition, however, may be greatly benefited by treatment.

About 90 per cent. of all cases of thyroid disturbance occur in women; therefore it is the condition of the gland in women that we are discussing.

The disturbances caused by an increased secretion are tachycardia or attacks of simple palpitation, nervous irritability, sleeplessness, increased perspiration, hot flashes, some digestive disturbances and a tendency to menstrual flooding. Some of the signs of hyposecretion which may not be recognized are certain forms of obesity, especially that form which, when fully developed, is typical of the picture of adiposis dolorosa; drowsiness and a tendency to sleep in the daytime, and more or less mental apathy and sluggishness; dry skin and perhaps chronic eczemas; slow pulse; often an increase in blood-pressure; various digestive disturbances, and amenorrhea or scanty menstruation before it is time for such a condition to occur.

The neurotic woman who is very active socially, good company and bright in reparteé, and who may be doing much of the good work of the world, who works on nerve and finally collapses, very generally has hypersecretion of the thyroid. It is this type that may not be hysterical as we understand major hysteria with stigmata, but such patients when they have pains have them in excess of all local cause. They eat very little, even for days, perhaps get little sleep and recuperate with difficulty after they once break down, and one breakdown is likely to be followed by others. If these patients can be made apathetic without being made melancholic, they will rapidly recover. Such patients should receive, in a modified form, the same kind of treatment that we advise in more developed Graves' disease.

It has lately been shown that some of the symptoms in Graves' disease may be due to the secretion from left-over fragments of the thymus gland. On the other hand, it should be remembered that some types of mental depression and some instances of epilepsy are due to subsecretion of the thyroid.

If it is presumed, from the symptoms, that the thyroid is subsecreting, it may be activated either by iodin or by the administration of thyroid. If the symptoms are inconclusive (that is, some symptoms showing increased thyroid secretion and some are apparent undersecretion) it will often be found that the feeding of thyroid will make the patient worse, but small doses of an iodid may aid the thyroid in recovering its efficiency. Disturbances of the menopause are due to the secretions of the thyroid, ovaries and probably corpus luteum not having become correlated to the changed condition of the woman.

ORTHOSTATIC ALBUMINURIA

Not too great reliance should be placed on the fact that a morning urine is perfectly clear of albumin. It is necessary, in a doubtful condition, that we should examine specimens of urine passed at different times during the day, unless we are careful to obtain the twenty-four-hour specimen, and even then the variations of the urine passed at different times will not be discovered. Sometimes a patient who has an albumin-free morning urine will show a large percentage of albumin in the urine at noon and in the evening.

(To be continued)

STATE BOARD STATISTICS FOR 1913

THE ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1640 to 1649 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1913. These statistics are complete, since full reports were obtained from all state licensing boards.

Tables A and B have been arranged so that, read from left to right, they give the results by colleges, showing the number of graduates appearing for examination in each state, whether they passed or failed, the total number examined during the year, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of each school appeared for examination. Read from above downward, they give the results by states, showing the number registered and rejected from each college, the total number examined, the total number registered, the total number rejected and the percentage of rejections. The fact that the majority of graduates take the license examination in the state in which the college is located is shown by the dark diagonal zone made by the grouping of figures, passing from the upper left to the lower right corner of each table. This shows also that the states in which low-grade medical schools are permitted to exist are themselves the recipients of the greater portion of the ill-trained output of such schools. These tables are worthy of much careful study, for many important deductions are possible. The marginal numbers will enable the reader more readily to follow the lines for any colleges in which he is interested.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, several factors should be considered carefully. The number examined is important since, if all other conditions are equal, the larger the number of graduates examined the more accurate is the finding. But other conditions are seldom equal. The number of states in which a school's graduates have been examined is important. The larger this number the more accurate will be the conclusions. Again, the character of the board making the examination and the methods employed are important factors to be considered, since some boards hold very careful examinations and include practical laboratory and clinical tests, or they may mark the papers more severely, while others, especially partisan boards, may be very lenient. In this connection it should be stated that although conditions are undergoing a steady improvement, it is still true that the character of the license examination as usually conducted, is such that graduates of colleges conducted largely by quiz-class methods may easily be successful in passing them. It is particularly important in forming conclusions based on these statistics to note for each college the states in which its graduates *are not admitted to examinations*—information set forth for the first time with these statistics, in Table D.

Graduates of All Years Examined in 1913

Table A shows the results for all candidates who took examinations in 1913 regardless of the years in which they graduated. This shows that altogether 6,435 were examined last year, as compared with 6,879 in 1912; 6,960 in 1911; 7,004 in 1910, and 7,287 in 1909. Of those examined, 18.6 per cent. failed, as compared with 20.5 per cent. in 1912; 19.9 per cent. in 1911; 18.4 per cent. in 1910, and 19.6 per cent. in 1909. During the years 1905 to 1908 the percentage of failures each year was over 20 per cent. The rather lower percentage in recent years is doubtless due to two causes: (1) wider extension of reciprocity and (2) the fact that graduates of low-grade medical colleges are now not admitted to examinations in about thirty states (see Table D). Graduates of low-grade colleges therefore who are usually responsible for high-failure percentages are found to take their examinations in the more lenient states and as a consequence, fewer failures result.

There were 99 medical colleges in the United States granting degrees in 1913, which had graduates examined, as compared with 110 in 1912, and with 153 in 1905. Foreign graduates were examined in twenty-four states, the total number being eighty-nine; and of this number forty-two, or 47.2 per cent. failed. The largest number of foreigners examined in any state was twenty in New York. Graduates of Canadian schools were examined in nineteen states, more appearing, naturally, in the border-line states. The figures for the Canadian colleges are given separately in order to show the number of candidates coming from each as well as to show the successes of their graduates at the examinations. Altogether 58 candidates from Canadian colleges were examined, of which number 17, or 29.3 per cent., failed. Of all Canadian colleges, the McGill University had the largest number examined. The highest percentages of failures were for Laval University, 63.3, Queen's University, 40 and the University of Toronto, 20.

Undergraduates Examined During 1913

Line 107 of Table A shows the number of non-graduates examined in seven states during 1913. Altogether 251 non-graduates were examined, of which number 95, or 37.8 per cent., failed, as compared with 35 per cent. in 1912, 38.5 per cent. in 1911 and 45.6 per cent. in 1910. Such candidates were examined during 1913 in Colorado, Florida, Maryland, Massachusetts, Oregon, Tennessee and Texas. Of such candidates 1 was licensed in Colorado, 15 in Oregon, 19 in Massachusetts and 121 in Tennessee. In Tennessee in the last four years 1,187 candidates were registered by examination, and of these 515, or 43.4 per cent., were non-graduates. Meanwhile, Tennessee is now the only Southern state which has the door wide open for non-graduates and is the only state in the country which registers any considerable number of such candidates.

Recent Graduates Examined During 1913

Table B gives the results for graduates of 1909 to 1913 inclusive who were examined during 1913. This table is particularly important since it deals with recent graduates and is, therefore, the fairest basis for comparison between colleges. Such comparisons are worthless, however, unless reference is also made to Table D, showing in what states candidates are reported not eligible for examination. Of all candidates examined in 1913, 5,390, or 83.8 per cent., were recent graduates, and of this number 16.5 per cent. failed, as compared with 18.6 per cent. for all candidates. The figures for several medical schools which have ceased to exist either through merger or otherwise have been included in the line for miscellaneous colleges.

Old Practitioners Examined During 1913

Table C is so arranged as to show in comparison the results of all years (first column), for recent graduates (second column), the graduates of 1908 and previous year (third column), and the graduates of 1913 (fourth column). Of the graduates of 1908 and previous years—of "old practitioners"—794 were examined, and of this number 223, or 28.1 per cent., failed as compared with 16.5 per cent. of failures for recent graduates. This high percentage of failures is probably due chiefly to the long time these candidates have been out of college and to the fact that they are required to take the same examination as recent graduates.

CONTINUED ON PAGE 1652

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 District of Columbia P	8 District of Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F	Marginal Number
	ALABAMA																																											
1	Birmingham Medical College	25	19															1	0	1	0													1	0									1
2	University of Alabama, School of Medicine	22	5			1	0											10	0	1	0													1	0									2
	ARKANSAS																																										
3	University of Arkansas, Medical Dept.					22	9																							1	0			0	1									3
	CALIFORNIA																																										
4	California Eclectic Medical College.—E			1	0			2	4																																			4
5	College of Phys. and Surgs., Los Angeles							20	1																																			5
6	Hahnemann Medical College of the Pacific.—H							12	1									0	1																									6
7	Leland Stanford Junior Univ., Dept. of Med.							7	0																																			7
8	Oakland College of Medicine and Surgery							4	0																																			8
9	College of Phys. and Surgs., San Francisco							4	3																															0	1			9
10	University of California, Medical Dept.							13	0																																			10
	COLORADO																																										
11	University of Colorado, School of Medicine			1	0			6	0	44	0															2	0																	11
	CONNECTICUT																																										
12	Yale University, Medical Dept.											16	1																											1	0			12
	DISTRICT OF COLUMBIA																																										
13	George Washington University, Dept. of Med.															12	0			1	0			3	0													6	0	4	0			13
14	Georgetown University School of Medicine											3	2	1	0	11	0	2	0					1	0														1	0			14
15	Howard University School of Medicine	1	1									0	1			9	0	1	0											3	0	2	0											15
	GEORGIA																																										
16	Atlanta College of Physicians and Surgeons	3	6															11	3	83	0													1	2									16
17	Atlanta School of Medicine	1	5															7	2	32	1													1	0									17
18	Georgia College of Eclectic Med. and Surg.—E	0	1			1	0																																					18
19	Southern College of Medicine and Surgery	0	2															0	7	2	9																							19
20	University of Georgia, Medical Dept.																	4	3	25	1																			1	1			20
	ILLINOIS																																										
21	Bennett Medical College			1	0			1	0							2	0	1	0			1	0	58	10	1	0	1	1			0	1	1	0					1	0	2	0	21
22	Chicago College of Medicine and Surgery	4	2			1	0	1	1									2	0			1	0	151	29	7	6	9	0	5	0	1	0	1	0					1	2	4	0	22
23	Hahnemann Medical College and Hospital.—H							1	2	1	0	2	0			1	0							24	5	3	0	3	0	1	0	1	0			1	0							23
24	Jenner Medical College																					0	1	10	3																			24
25	Northwestern University Medical School	1	0	1	0	1	0	7	0									2	0			1	0	56	1	2	0	8	0															25
26	University of Illinois College of Medicine			1	1	1	0	10	1									2	0					122	8	4	0	7	0	1	0											2	0	26
27	Rush Medical College	1	0	3	0	4	0	8	0			1	0					2	0			1	0	76	0	3	0	8	0	3	0													27
	INDIANA																																										
28	Indiana University School of Medicine			1	0																					48	0																	28
	IOWA																																										
29	State Univ. of Iowa College of Medicine							1	0									1	0					2	0			17	0											1	0			29
30	State Univ. of Iowa Coll. of Homeo. Med.—H																											7	0															30
	KANSAS																																										
31	University of Kansas School of Medicine	1	0	1	0																									8	0													31
	KENTUCKY																																										
32	University of Louisville, Medical Dept.			1	0							0	4					3	1	4	1			0	1	17	1	1	0	1	0	48	4	3	0									32
	LOUISIANA																																										
33	Tulane University, School of Medicine	7	2	0	1													4	0	1	0											1	0	50	1									33
	MAINE																																										
34	Medical School of Maine			1	0			1	1									1	0	1	0															10	1			7	3			34
	MARYLAND																																										
35	Eastern University School of Med., Baltimore.—E																																							0	1			35
36	Johns Hopkins University, Medical Dept.							4	0			3	0	1	0	2	0			3	0	1	0	1	0							4	0					30	1	2	0			36
37	College of Physicians and Surgeons, Baltimore			1	0							6	5					3	0			1	0															7	4	5	0			37
38	University of Maryland School of Medicine	1	1					1	1			1	4			2	0	1	0	2	0																	27	9	1	0	1	0	38
	MASSACHUSETTS																																										
39	Boston University School of Medicine.—H											1	0			1	0																			2	0			9	1	3	0	39
40	College of Physicians and Surgeons, Boston											0	1			1	1	1	0																	3	5	0	1	2	7			40
41	Harvard Medical School			1	0			1	0	1	0	2	0					1	0					2	0	1	0	1	0							12	0			38	1	1	0	41
42	Tufts College Medical School											2	2					0	2					1	0			1	0							7	0	1	0	69	9			42
	MICHIGAN																																										
43	Detroit College of Medicine and Surgery							1	0									1	0																							27	0	43
44	Univ. of Michigan, Dept. of Med. and Surg.							2	0	1	0	0	1					2	0			2	0	1	0															1	0	34	0	44
45	Univ. of Michigan, Homeopathic College.—H																																								13	0	45
	MINNESOTA																																										
46	University of Minnesota, Medical School							2	0																																			46
	MISSOURI																																										
47	American Medical College					2	0	0	3									0	3					4	7	1	0	1	0	0	1	1	0											47
48	Eclectic Medical University.—E					11	2			0	1																																	48
49	Ensworth Medical College			0	1																	0	1					5	0	1	1											49
50	Kansas City Hahnemann Medical College.—H									1	0																			5	0													50
51	St. Louis University School of Medicine			2	0	1	0	1	0									3	0			1	0	7	0			3	0	3	0													51
52	St. Louis College of Physicians and Surgeons							1	0									0	2			1	0	1	4			1	2			1	0											52
53	Washington University, Medical School			3	0	1	0	1	0													1	0	6	0																			53
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

H—Homeopathic; E—Eclectic.

| Marginal Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|---|---|---

Marginal Number.	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	NEBRASKA																																										
54	John A. Creighton Medical College			0	1			1	0													2	0							1	0											54
55	Cotner Medical College.—E							1	0									0	1																							55
56	University of Nebraska, College of Medicine									0	1																															56
	NEW HAMPSHIRE																																									
57	Dartmouth Medical School											1	0																									8	1			57
	NEW YORK																																									
58	Albany Medical College													1	0									1	0	1	0											1	0			58
59	Columbia University, Coll. of Phys. and Surgs.	1	0					1	0			4	1			1	0	1	0	1	0			1	0	1	0	1	0	1	0			2	0			1	1			59
60	Cornell University Medical College							2	0									1	0																			1	0			60
61	Fordham University, School of Medicine											2	1																													61
62	Long Island College Hospital							1	0			2	1			1	0													1	0											62
63	New York Homeopathic Med. Coll. and Hosp.—H											5	0			2	0									1	0											1	0			63
64	New York Med. Coll. and Hosp. for Women.—H.							1	0																													1	0			64
65	Syracuse University College of Medicine							1	0															1	0					1	0			1	0					1	1	65
66	University and Bellevue Hospital Medical Coll.											5	0					1	0													1	0					2	0			66
67	University of Buffalo, Medical Dept.							1	0									0	1																			1	0	1	0	67
	NORTH CAROLINA																																									
68	Leonard Medical School	0	1															0	1	1	0																					68
69	North Carolina Medical College																	1	0	1	0																					69
	OHIO																																									
70	Cleveland-Pulte Medical College.—H																																								70
71	Eclectic Medical College.—E					7	0	0	2									1	0							2	0									0	1					71
72	Ohio-Miami Medical College	1	0					1	0																							1	0									72
73	Starling-Ohio Medical College																																								73
74	Toledo Medical College																																								74
75	Western Reserve University, School of Medicine																	1	0																			1	0			75
	OKLAHOMA																																									
76	University of Oklahoma, School of Medicine																																								76
	OREGON																																									
77	University of Oregon, Medical Dept.																					1	0																			77
	PENNSYLVANIA																																									
78	Hahnemann Medical College and Hospital.—H											1	0													1	0											1	0			78
79	Jefferson Medical College	2	0			2	0	3	0			6	0	5	0			2	0					2	2			3	0			2	0	1	0	1	0	6	1	2	0	1	0	79
80	Medico-Chirurgical College of Philadelphia											1	0			1	0					1	0															2	0			80
81	Temple University, Medical Dept.															1	0																					1	1			81
82	University of Pennsylvania, School of Medicine	2	0	1	0			4	0					1	0	2	0			1	0			2	0	3	0	2	0									3	0	3	0	82
83	University of Pittsburgh, Medical Dept.							1	1					1	0																									1	0	83
84	Woman's Medical College of Pennsylvania									1	0	1	0			2	0																					5	0	4	1			84
	SOUTH CAROLINA																																									
85	Medical College of South Carolina																	1	1	1	0			1	0																	85
	TENNESSEE																																										
86	Lincoln Memorial University, Medical Dept.			0	1			0	1																					2	1											86
87	Meharry Medical College	2	0			4	8											3	3	7	9			4	8					6	2	2	2	0	1			0	3			87
88	University of Tennessee, College of Medicine	0	3			7	1																	1	0					0	1			2	4							88
89	University of West Tennessee, Medical Dept.																	1	1																							89
90	Vanderbilt University, Medical Dept.	4	0			1	0	4	0							1	0	7	1			2	0	1	0			1	0					5	0	1	0					90
	TEXAS																																										
91	Baylor University College of Medicine																							1	0																	91
92	Texas Christian University, School of Medicine																																			1	0					92
93	Southern Methodist University, Medical Dept.																																								93
94	University of Texas, Dept. of Medicine																							1	0																	94
	VERMONT																																										
95	University of Vermont College of Medicine							1	0			8	8																									11	3			95
	VIRGINIA																																									
96	Medical College of Virginia																	1	0					0	1													2	1	2	0			96
97	University of Virginia, Dept. of Medicine	1	0	1	0	1	0									1	0	4	0																					1	0	97
98	University College of Medicine, Richmond	1	1											1	0																											98
	WISCONSIN																																										
99	Marquette University, Medical Dept.																							1	0													1	0			99
	CANADIAN																																									
100	Laval University, Medical Faculty																	0	1																	1	1	1	0			100
101	McGill University, Medical Faculty											1	0																							1	0	1	0	1	0	101
102	Queen's University, Faculty of Medicine																																					1	0			102
103	University of Manitoba, Manitoba Med. Coll.																																									103
104	University of Toronto, Medical Faculty																	1	0																					2	1	104
105	Foreign Colleges			2	0			2	3	0	1			1	1			2	1					2	3									1	0			3	1	5	4	3	0	105
106	Miscellaneous Medical Colleges	9	8	3	4	23	8	26	11	3	2	3	19			2	4	22	13	3	3	4	0	22	16	3	0	27	1	47	2	6	4	4	11	5	2	14	15	2	7	1	1	106
107	Undergraduates									1	0							0	1																			0	2	19	29			107
	Totals by States	147		35		119		199		58		128		13		60		165		195		23		665		102		111		90		90		89		55		148		289		102		
	Totals—Examined—Passed	90		26		91		163		53		77		12		55		116		171		21		567		101		107		89		78		69		46		108		215		99		
	Totals—Examined—Failed	57		9		28		36		5		51		1		5		49		24		1		98		1		4		7		12		20		9		40		74		3		
	Percentage of Failures	38.8		25.7		23.5		18.1		8.6		39.8		7.7		8.3		29.7		12.3		8.7		14.7		1.0		3.6		7.3		13.3		22.5		16.4		27.0		25.6		2.9		
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

H—Homeopathic; E—Eclectic.

Marginal Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
54			1 0	5 1	37 2										2 0				2 0			1 0					1 0		57	53	4	7.0	11	54
55					7 0										1 0										1 0			1 0	11	10	1	9.1	5	55
56					10 0														1 0										13	12	1	7.7	4	56
57				1 0			3 1	1 0		2 0																			18	16	2	11.1	6	57
58				1 0						41 21					1 0	4 0	3 0	1 0		1 0	1 0		1 0	4 0					69	48	21	30.4	8	58
59		2 0	4 0			1 0		1 0		38 13	3 0						2 0						1 1	1 0					147	131	16	10.9	27	59
60								1 0		20 1																			29	28	1	3.4	7	60
61								2 0		15 8																			28	19	9	32.1	5	61
62								4 0		78 29														1 0					118	88	30	25.4	7	62
63				1 0		1 0		8 1		18 19						1 0	1 1												60	39	21	35.0	10	63
64										6 2			1 0																11	9	2	18.2	4	64
65										25 6							1 0								0 1				39	31	8	20.6	9	65
66								9 2		63 5						1 0	1 0				1 0				1 0				92	85	7	7.6	10	66
67						1 0	1 0			35 13					1 0	1 0									1 1				58	43	15	25.9	10	67
68											6 12					0 2		7 7		3 0	1 0			1 1		6 4			53	25	28	51.9	9	68
69											23 7							3 3		1 0				2 0		1 0			42	32	10	23.8	7	69
70													21 1		2 0	1 1										1 0			27	25	2	7.5	4	70
71			1 0			1 0			1 0				14 0	1 0	1 0	2 0				1 0					0 1	2 2			40	34	6	15.0	15	71
72						1 0				0 1			25 0													1 0			31	30	1	3.2	7	72
73						1 0							32 1																54	53	1	1.9	2	73
74													15 0																15	15	0	0.	1	74
75										1 0			27 0	1 0															31	31	0	0.	5	75
76														9 0															9	9	0	0.	1	73
77															12 2										8 0				23	21	2	8.7	3	77
78				1 0				3 0		1 2					1 0	27 2											1 0		41	37	4	9.8	9	78
79	1 0	2 0	1 0	3 0	1 0			10 0		2 4	6 0	2 0		2 0	4 1	54 7	1 0	2 1			1 0	1 0		1 0	8 0				154	140	14	9.1	22	79
80								1 0		4 3	0 1					48 4		1 0									2 0		69	61	8	11.6	10	80
81	1 0				1 0						0 1					16 3			1 0										25	20	5	20.0	6	81
82								10 0		10 5	6 0	1 0	4 0		3 0	70 2	1 0	1 0		2 0	4 0			1 0		0 1	2 0	1 0		146	139	7	4.8	25	82
83										0 1						50 1									0 1				62	55	7	11.3	7	83
84								1 0		4 3					1 1	15 1		2 0						1 0					43	37	6	14.0	11	84
85											0 1							37 7											49	40	9	4.9	4	85
86														1 1				2 0		3 8				0 1		1 0			20	8	12	60.0	7	86
87	0 1	1 2	1 2		1 0						0 1			1 1				2 3		55 3	13 5			0 1		0 1			158	102	56	35.4	20	87
88		4 3						1 0			0 2			1 0						21 1	1 1			1 0					55	39	16	29.1	12	88
89																		0 2		5 7									16	6	10	62.5	3	89
90		6 0	2 0	1 0						0 1	2 0			1 0				1 1		26 2	9 0								80	75	5	6.2	19	90
91														1 0							19 1								22	21	1	4.5	3	91
92														2 0							14 1								19	18	1	5.3	4	92
93									1 0												14 0								14	14	0	0.	1	93
94			1 0								1 0				0 1						36 0								40	39	1	2.5	5	94
95							1 1			3 4							2 0						19 0						61	45	16	26.2	7	95
96								1 0		3 0	4 2					2 0					1 0			25 12		4 0			61	45	16	26.2	11	96
97		1 0						1 0		5 2	3 0				1 0			2 0						4 0	1 0				29	27	2	6.9	14	97
98								2 0		1 0	8 1										1 0			32 2		3 1			54	49	5	9.3	8	98
99	0 1		2 0	2 1								0 2		1 0													70 8	1 0	90	78	12	13.3	9	99
100										0 1							1 1												11	4	7	63.6	8	100
101	0 1			1 0						7 1		0 2																1 0	15	14	1	6.7	8	101
102	1 0									2 4		0 1				2 1	1 0					1 0					1 0		15	9	6	40.0	8	102
103	1 0											1 0			1 0														2	2	0	0.	2	103
104	1 0			2 0		1 0				1 1		1 0				1 1					1 0				1 0				15	12	3	20.0	10	104
105	4 1	1 0	1 0					1 2		4 16			2 0		1 0	2 6				1 0	5 0		1 1	2 0	1 1	0 1			89	47	42	47.2	24	105
106		19 11	35 5	8 7	8 0	0 2	3 1	1 0	1 0	12 11	1 2	4 3	14 0	10 3	23 13	20 10		3 7	3 0	39 16	13 0			5 0	4 7	8 4		3 0	698	466	232	33.2	43	106
107															15 11					121 51	0 1								251	156	95	37.8	7	107
		75	80	225	73	80	13	20	76	7	716	111	29	192	63	148	404	32	146	31	400	179	27	26	106	85	75	109	11	3435					
		71	61	200	57	87	10	17	69	6	511	77	16	189	58	112	345	28	99	30	306	168	24	24	87	63	58	98	10	....	5236			
		4	19	25	16	2	3	3	7	1	205	34	13	3	5	36	59	4	47	1	94	11	3	2	19	22	17	8	1	....	....	1199	....	....	
		5.3	23.7	11.1	21.9	2.2	23.1	15.0	9.2	14.3	28.6	30.6	44.8	1.6	7.9	24.3	14.6	12.5	32.2	3.2	23.5	6.2	11.1	7.7	17.9	25.9	22.7	7.5	9.1	....	....	....	18.6	....	
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	ALABAMA																																									
1	Birmingham Medical College	24	17															1	0	1	0											1	0									1
2	University of Alabama, School of Medicine	22	5			1	0											8	0	1	0											1	0									2
	ARKANSAS																																								
3	University of Arkansas, Medical Dept.					22	9																							1	0			0	1							3
	CALIFORNIA																																									
4	California Eclectic Medical College.—E							2	4																																	4
5	College of Phys. and Surgs, Los Angeles			1	0			20	1																																	5
6	Hahnemann Medical College of the Pacific.—H							12	1																																	6
7	Leland Stanford Junior Univ., Dept. of Med.							7	0																																	7
8	Oakland College of Medicine and Surgery							4	0																																	8
9	College of Phys. and Surgs., San Francisco							4	3																																	9
10	University of California, Medical Dept.							10	0																																	10
	COLORADO																																								
11	University of Colorado, School of Medicine			1	0			5	0	44	0															2	0															11
	CONNECTICUT																																								
12	Yale University, Medical Dept.											14	1																											1	0			12
	DISTRICT OF COLUMBIA																																								
13	George Washington University, Dept. of Med.															12	0			1	0			2	0											5	0	2	0			13
14	Georgetown University School of Medicine											3	2	1	0	10	0	1	0					1	0													1	0			14
15	Howard University School of Medicine	1	0									0	1			9	0	1	0											3	0	2	0									15
	GEORGIA																																								
16	Atlanta College of Physicians and Surgeons	3	6															10	2	83	0											1	2									16
17	Atlanta School of Medicine	1	4															7	2	32	1											1	0					1	2			17
18	Georgia College of Eclectic Med. and Surg.—E	0	1			1	0																																			18
19	Southern College of Medicine and Surgery	0	2															0	7	2	9																					19
20	University of Georgia, Medical Dept.																	3	3	25	1																	1	1			20
	ILLINOIS																																								
21	Bennett Medical College			1	0											2	0							58	10	1	0	1	1			0	1	1	0					1	0	2	0	21
22	Chicago College of Medicine and Surgery	4	2			1	0	1	1									2	0			1	0	151	29	6	0	9	0	5	0	1	0	1	0					1	2	4	0	22
23	Hahnemann Medical College and Hospital.—H									1	0	2	0											24	5	3	0	2	0	1	0	1	0			1	0					23
24	Jenner Medical College																							10	6																	24
25	Northwestern University Medical School					1	0	3	0															54	1	2	0	7	0													25
26	University of Illinois College of Medicine			1	0			3	1															122	8	3	0	6	0	1	0									2	0	26
27	Rush Medical College			2	0			2	0			1	0											74	0	2	0	6	0	3	0											27
	INDIANA																																								
28	Indiana University School of Medicine			1	0																					48	0															28
	IOWA																																								
29	State Univ. of Iowa College of Medicine																							1	0			17	0											1	0			29
30	State Univ. of Iowa Coll. of Homeo. Med.—H																											7	0													30
	KANSAS																																								
31	University of Kansas School of Medicine			1	0																									8	0											31
	KENTUCKY																																								
32	University of Louisville, Medical Dept.			1	0							0	4					2	0	4	1					17	1	1	0	1	0	48	4	3	0							32
	LOUISIANA																																								
33	Tulane University, School of Medicine	7	2															4	0	1	0											1	0	49	0							33
	MAINE																																								
34	Medical School of Maine																																			10	1			2	2			34
	MARYLAND																																									
35	Eastern Univ., School of Med., Baltimore.—E																																							0	1			35
36	Johns Hopkins University, Medical Dept.							3	0			3	0	1	0	2	0			3	0	1	0	1	0							4	0					28	1	2	0			36
37	College of Physicians and Surgeons, Baltimore											6	5					1	0			1	0															7	4	4	0			37
38	University of Maryland School of Medicine	1	1					1	0			1	4			2	0	1	0	2	0																	27	9			1	0	38
	MASSACHUSETTS																																									
39	Boston University School of Medicine.—H															1	1	1	0																	2	0			8	1	1	0	39
40	College of Physicians and Surgeons, Boston																																			3	5	0	1	2	7			40
41	Harvard Medical School							1	0	1	0	2	0											1	0	1	0	1	0							11	0			34	1	1	0	41
42	Tufts College Medical School											2	2					0	1					1	0			1	0							6	0	1	0	69	9			42
	MICHIGAN																																								
43	Detroit College of Medicine and Surgery																																							27	0			43
44	Univ. of Michigan, Dept. of Med. and Surg.							1	0	1	0	0	1											1	0															32	0			44
45	Univ. of Michigan, Homeopathic College.—H																																							13	0			45
	MINNESOTA																																										
46	University of Minnesota, Medical School							1	0																																			46
	MISSOURI																																									
47	American Medical College							0	1									0	2					1	3	1	0			0	1	1	0									47
48	Eclectic Medical University.—E					10	2			0	1																															48
49	Ensworth Medical College																											5	0	1	1											49
50	Kansas City Hahnemann Medical College.—H									1	0																			5	0											50
51	St. Louis University School of Medicine			2	0	1	0	1	0									2	0			1	0	7	0			3	0	3	0											51
52	St. Louis College of Physicians and Surgeons																							0	2			1	1			1	0									52
53	Washington University, Medical School			2	0	1	0																	4	0																	53
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		

H—Homeopathic; E—Eclectic.

Margins' Number	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Ex. in	Marginal Number
	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming						
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
1														2 0							1 0								47	30	17	36.2	6	1
2		3 1			1 0													1 0		1 0									45	39	6	13.3	9	2
3			1 1											4 0						2 0									41	30	11	24.4	6	3
4						1 0																							7	3	4	57.1	2	4
5														1 0		0 1													24	22	2	8.3	4	5
6																													13	12	1	7.7	1	6
7																													7	7	0	0.	1	7
8																													4	4	0	0.	1	8
9															0 1														8	4	4	50.0	2	9
10																													10	10	0	0.	1	10
11															3 0				2 0		1 0	1 0			2 0		1 0		62	62	0	0.	10	11
12										8 1			1 0																26	24	2	7.7	4	12
13										2 1	1 0				1 0						1 0		1 0	2 0	1 0				31	30	1	3.2	12	13
14								1 0		2 2					1 0	4 2										2 0			32	26	6	19.3	10	14
15			1 0					3 0			2 1		3 0			1 0	1 0	3 0		1 0	1 0			1 0					37	35	2	5.4	17	15
16		2 0													1 0			6 2		3 0	1 0								123	110	13	10.5	9	16
17		3 0																3 1											58	48	10	17.1	7	17
18																		0 1			0 1								4	1	3	75.0	4	18
19																		0 3		0 3									26	2	24	92.3	5	19
20																		4 2											41	33	8	19.5	4	20
21			2 0	2 1	4 0					1 0				2 0					2 0	1 1					2 0	1 0	2 0		100	86	14	14.0	19	21
22		2 0	2 0	1 0	5 0				1 0	3 5	1 0	0 1		3 0		2 3		1 1	2 0	1 0	2 0	0 1			1 0	2 1	1 0		265	219	46	17.5	22	22
23			1 0		4 0																					1 0			46	41	5	10.9	11	23
24																													16	10	6	40.0	1	24
25	3 0		1 0	3 0	1 0							2 1		1 0	7 0				1 0			3 1			4 0	1 0			97	94	3	3.1	16	25
26	1 0		2 0	1 1						1 0		2 0		2 0					7 0		1 0			1 0	4 0	3 0	1 0		179	168	11	6.2	20	26
27	3 0		4 0	2 0	2 0					2 1		1 0		1 0	3 0	1 0			4 0			5 0			1 0	4 0			124	123	1	0.4	20	27
28																		0 1								1 0			51	50	1	2.0	4	28
29																													19	19	0	0.	3	29
30																													7	7	0	0.	1	30
31																													9	9	0	0.	2	31
32	1 0	1 0						2 0		1 0			1 1		1 0	2 4		1 1		4 0	7 1			1 1		8 3		1 0	129	108	21	16.3	22	32
33		12 1	3 0							1 0				3 0							12 0				1 0				97	94	3	3.1	11	33
34							3 0								1 0														19	16	3	15.8	4	34
35																													1	0	1	100.0	1	35
36			5 0							17 5	2 0		4 0		2 0	4 0		1 0		1 0	1 0	1 0		4 0	1 0				97	91	6	6.2	22	36
37				1 0				1 1		2 3	0 1					6 1	1 0	1 0		1 0		5 0				12 1	1 0		67	51	16	23.5	16	37
38								1 1		2 0	6 2					5 1	2 0	5 1						2 0		2 0			80	61	19	23.7	16	38
39							1 0									1 0		2 0											16	15	1	6.3	6	39
40											1 0							2 0											24	10	14	58.3	7	40
41	1 0		2 0	1 0			1 0	2 0		4 2			1 0		2 0	0 2	4 1									1 0			78	72	6	7.7	20	41
42							1 0			2 2							5 1						1 0		1 1				106	90	16	15.1	12	42
43													1 0																28	28	0	0.	2	43
44										1 0			1 0	1 0	2 0			1 0	1 0						2 0				45	44	1	2.2	12	44
45										1 2																			16	14	2	12.5	2	45
46	50 0											2 0													2 0				55	55	0	0.	4	46
47	1 0		26 7						1 0					2 0	1 0				0 1	11 2	1 0							62	46	17	27.0	14	47
48																													13	10	3	23.1	2	48
49			2 1		2 0									1 0					1 0										13	11	2	15.4	5	49
50			1 0		1 0									1 0							1 0								16	16	0	0.	6	50
51	1 0		54 0	1 1						1 0			1 0	1 0								1 0							81	80	1	1.2	15	51
52		1 0	6 5						0 1					1 0															19	10	9	47.4	7	52
53			27 0												1 0							1 0							30	30	0	0.	6	53
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49						

Marginal Number	NAME OF COLLEGE	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 District of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		Marginal Number
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	
	NEBRASKA																																									
54	John A. Creighton Medical College							1	0													2	0							1	0											54
55	Cotner Medical College.—E																																									55
56	University of Nebraska, College of Medicine																																								56
	NEW HAMPSHIRE																																								
57	Dartmouth Medical School											1	0																									6	1			57
	NEW YORK																																									
58	Albany Medical College													1	0									1	0													1	0			58
59	Columbia University, Coll. of Phys. and Surgs.							1	0			1	1							1	0							1	0	1	0					1	1			59
60	Cornell University Medical College							1	0									1	0																	1	0			60
61	Fordham University, School of Medicine											2	1																													61
62	Long Island College Hospital							1	0			2	1			1	0																									62
63	New York Homeo. Med. Coll. and Hosp.—H.											5	0			2	0																					1	0			63
64	New York Med. Coll. and Hosp. for Women.—H.																																					1	0			64
65	Syracuse University College of Medicine							1	0															1	0									1	0					1	0	65
66	University and Bellevue Hospital Medical Coll.											5	0																			1	0					2	0			66
67	University of Buffalo, Medical Dept.							1	0																													1	0	1	0	67
	NORTH CAROLINA																																									
68	Leonard Medical School	0	1															0	1	1	0																					68
69	North Carolina Medical College																	1	0	1	0																					69
	OHIO																																									
70	Cleveland-Pulte Medical College.—H																																								70
71	Eclectic Medical College.—E					6	0	0	1																	2	0									0	1					71
72	Ohio-Miami Medical College	1	0					1	0																							1	0									72
73	Starling-Ohio Medical College																																								73
74	Toledo Medical College																																								74
75	Western Reserve University, School of Medicine																																					1	0			75
	OKLAHOMA																																									
76	University of Oklahoma, School of Medicine																																								76
	OREGON																																								
77	University of Oregon, Medical Dept.																																								77
	PENNSYLVANIA																																									
78	Hahnemann Medical College and Hospital.—H																																					1	0			78
79	Jefferson Medical College	2	0			2	0					6	0	5	0			1	0					2	0			2	0	2	0	1	0			6	0	2	0	1	0	79
80	Medico-Chirurgical College of Philadelphia															1	0					1	0													2	0					80
81	Temple University, Medical Dept.															1	0																			1	1					81
82	University of Pennsylvania, School of Medicine	2	0					1	0					1	0	1	0			1	0					2	0	1	0							3	0					82
83	University of Pittsburgh, Medical Dept.							1	1					1	0																									1	0	83
84	Woman's Medical College of Pennsylvania									1	0	1	0			2	0																			5	0	4	1			84
	SOUTH CAROLINA																																									
85	Medical College of South Carolina																	1	1	1	0																					85
	TENNESSEE																																									
86	Lincoln Memorial University, Medical Dept.																															2	1									86
87	Meharry Medical College	2	0			4	7											3	3	7	7			4	6					6	2	2	2	0	1			0	3			87
88	University of Tennessee, College of Medicine	0	3			6	1																	1	0					0	1			2	4							88
89	University of West Tennessee, Medical Dept.																	1	1																							89
90	Vanderbilt University, Medical Dept.	3	0			1	0	4	0							1	0	7	0			2	0	1	0			1	0			5	0	1	0							90
	TEXAS																																									
91	Baylor University College of Medicine																							1	0																	91
92	Texas Christian University, School of Medicine																																			1	0					92
93	Southern Methodist University, Medical Dept.																																								93
94	University of Texas, Dept. of Medicine																							1	0																	94
	VERMONT																																									
95	University of Vermont College of Medicine							1	0			8	6																									10	1			95
	VIRGINIA																																									
96	Medical College of Virginia																																					2	1	2	0			96
97	University of Virginia, Dept. of Medicine	1	0			1	0											2	0																					1	0	97
98	University College of Medicine, Richmond	0	1											1	0																											98
	WISCONSIN																																									
99	Marquette University, Medical Dept.																							1	0													1	0			99
	CANADIAN																																									
100	Laval University, Medical Faculty																																			1	0			1	0			100
101	McGill University, Medical Faculty											1	0																									1	0	1	0	101
102	Queen's University, Faculty of Medicine																																					1	0			102
103	University of Manitoba, Manitoba Med. Coll.																																									103
104	University of Toronto, Medical Faculty																	1	0																					2	1			104
105	Foreign Colleges			1	0			1	1					0	1			0	1					0	1							1	0			0	1	1	2			105
106	Miscellaneous Medical Colleges	7	8			14	7	4	2			2	17			2	4	6	4	2	2			15	11			25	0	45	2	4	4	8	10	8	2	14	15	2	7	1	0	106
	Totals by States	134		14		98		117		50		116		12		53		96		190		9		623		91		99		92		88		85		47		138		210		93	
	Totals—Examined—Passed	81		14		72		100		49		68		11		48		68		169		9		541		90		97		85		76		67		39		101		171		92	
	Totals—Examined—Failed	53		0		26		17		1		48		1		5		28		21		0		82		1		2		7		12		18		8		37		39		1	
	Percentage of Failures	39.5		0.		26.5		14.5		2.0		32.1		8.3		9.4		29.6		11.0		0.		13.2		1.0		2.0		7.6		13.6		21.2		17.0		36.6		18.6		1.0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

H—Homeopathic; E—Eclectic.

| Marginal Number | 22 Minnesota | | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Ex. in | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1909-1913					Graduates of 1908 and Previous					Graduates of 1913					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	ALABAMA																					
1	Birmingham Medical College	51	31	20	39.2	7	47	30	17	36.2	6	4	1	3	75.0	2	24	12	12	50.0	3	1
2	University of Alabama	49	43	6	12.2	10	45	39	6	13.3	9	4	4	0	0.	3	18	16	2	11.1	5	2
	ARKANSAS																					
3	University of Arkansas	41	30	11	26.9	6	41	30	11	24.4	6	.....	.....	.....	.....	.....	31	25	6	19.4	3	3
	CALIFORNIA																					
4*	California Eclectic Medical College.—E	8	3	5	62.5	2	7	3	4	57.1	2	1	0	1	100.0	1	7	3	4	57.1	2	4
5	College of Phys. and Surgs., Los Angeles	24	22	2	8.3	4	24	22	2	8.3	4	.....	.....	.....	.....	.....	22	21	1	4.5	2	5
6	Hahnemann Medical College of the Pacific.—H	15	13	2	13.3	3	13	12	1	7.7	1	2	1	1	50.0	2	10	10	0	0.	1	6
7	Leland Stanford Junior University	7	7	0	0.	1	7	7	0	0.	1	.....	.....	.....	.....	.....	7	7	0	0.	1	7
8	Oakland College of Medicine and Surgery	4	4	0	0.	1	4	4	0	0.	1	.....	.....	.....	.....	.....	3	3	0	0.	1	8
9	College of Phys. and Surgs., San Francisco	10	4	6	60.0	3	8	4	4	50.0	2	2	0	2	100.0	2	1	1	0	0.	1	9
10	University of California, Medical Dept.	14	13	1	7.2	2	10	10	0	0.	1	4	3	1	25.0	2	9	9	0	0.	1	10
	COLORADO																					
11	University of Colorado, School of Medicine	64	64	0	0.	11	62	62	0	0.	10	2	2	0	0.	2	38	38	0	0.	5	11
	CONNECTICUT																					
12	Yale University, Medical Dept.	29	27	2	6.9	4	26	24	2	7.7	3	3	3	0	0.	2	3	3	0	0.	2	12
	DISTRICT OF COLUMBIA																					
13	George Washington University, Dept. of Med.	37	35	2	5.4	13	31	31	1	3.2	12	6	5	1	16.7	5	8	8	0	0.	4	13
14	Georgetown University School of Medicine	35	28	7	20.0	12	32	26	6	19.3	10	3	2	1	33.3	3	10	9	1	10.0	6	14
15	Howard University School of Medicine	38	35	3	7.9	17	37	35	2	5.4	17	1	0	1	100.0	1	10	10	0	0.	8	15
	GEORGIA																					
16	Atlanta College of Physicians and Surgeons	128	113	15	11.7	10	123	110	13	10.6	10	5	3	2	40.0	4	116	105	11	9.5	9	16
17	Atlanta School of Medicine	59	48	11	18.6	7	58	48	10	17.1	8	1	0	1	100.0	1	40	37	3	7.5	4	17
18	Georgia College of Eclectic Med. and Surg.—E	4	1	3	75.0	4	4	1	3	75.0	4	.....	.....	.....	.....	.....	1	0	1	100.0	1	18
19	Southern College of Medicine and Surgery	26	2	24	92.3	5	26	2	24	92.3	5	.....	.....	.....	.....	.....	20	2	18	90.0	5	19
20	University of Georgia, Medical Dept.	42	34	8	19.0	4	41	33	8	19.5	4	1	1	0	0.	1	33	31	2	6.1	4	20
	ILLINOIS																					
21	Bennett Medical College	104	90	14	13.5	23	100	86	14	14.0	19	4	4	0	0.	4	62	51	11	17.7	10	21
22	Chicago College of Medicine and Surgery	266	220	46	17.3	32	265	219	46	17.4	32	1	1	0	0.	1	205	183	22	10.7	25	22
23	Hahnemann Medical College and Hospital.—H	59	50	9	15.3	17	46	41	5	10.9	11	13	9	4	30.8	9	28	27	1	3.6	6	23
24	Jenner Medical College	17	10	7	41.2	2	16	10	6	40.0	1	1	0	1	100.0	1	10	8	2	20.0	1	24
25	Northwestern University Medical School	116	112	4	3.4	20	97	94	3	3.1	16	19	18	1	5.3	10	55	54	1	1.8	5	25
26	University of Illinois College of Medicine	199	186	13	6.5	23	179	168	11	6.2	20	20	18	2	10.0	10	126	123	3	2.4	9	26
27	Rush Medical College	153	151	2	1.3	24	124	123	1	0.4	20	29	28	1	3.4	17	88	88	0	0.	14	27
	INDIANA																					
28	Indiana University School of Medicine	52	50	2	3.8	5	51	50	1	2.0	4	1	0	1	100.0	1	47	47	0	0.	1	28
	IOWA																					
29	State Univ. of Iowa, College of Medicine	26	25	1	3.8	8	19	19	0	0.	3	7	6	1	14.3	6	17	17	0	0.	2	29
30	State Univ. of Iowa, College of Homeo. Med.—H	7	7	0	0.	1	7	7	0	0.	1	.....	.....	.....	.....	.....	6	6	0	0.	1	30
	KANSAS																					
31	University of Kansas School of Medicine	10	10	0	0.	3	9	9	0	0.	2	1	1	0	0.	1	7	7	0	0.	1	31
	KENTUCKY																					
32	University of Louisville, Medical Dept.	140	114	26	21.4	20	129	108	21	16.3	22	11	6	5	45.5	8	83	79	4	4.8	13	32
	LOUISIANA																					
33	Tulane University, Medical Dept.	101	96	5	4.9	13	97	94	3	3.1	11	4	2	2	50.0	3	68	67	1	1.5	8	33
	MAINE																					
34	Medical School of Maine	31	26	5	16.1	8	19	16	3	15.8	4	12	10	2	16.7	6	13	11	2	15.4	3	34
	MARYLAND																					
35	Eastern Univ., School of Med., Baltimore.—E	1	0	1	100.0	1	1	0	1	100.0	1	.....	.....	.....	.....	.....	1	0	1	100.0	1	35
36	Johns Hopkins University, Medical Dept.	104	98	6	5.8	23	97	91	6	6.2	22	7	7	0	0.	6	55	53	2	3.6	16	36
37	College of Physicians and Surgeons, Baltimore	74	56	18	24.3	19	67	51	16	23.5	16	7	5	2	28.6	6	36	30	6	16.7	9	37
38	University of Maryland School of Medicine	88	66	22	25.0	18	80	61	19	23.7	16	8	5	3	37.5	6	45	41	4	8.9	10	38
	MASSACHUSETTS																					
39	Boston University School of Medicine.—H	23	22	1	4.4	8	16	15	1	6.3	6	7	7	0	0.	5	11	10	1	9.1	3	39
40	College of Physicians and Surgeons, Boston	25	10	15	60.0	8	24	10	14	58.3	7	1	0	1	100.0	1	7	2	5	71.4	3	40
41	Harvard Medical School	94	87	7	7.4	23	78	72	6	7.7	20	16	15	1	6.3	12	34	31	3	8.8	9	41
42	Tufts College Medical School	109	92	17	15.6	13	106	90	16	15.1	12	3	2	1	33.3	3	71	61	10	14.1	6	42
	MICHIGAN																					
43	Detroit College of Medicine and Surgery	34	34	0	0.	8	28	28	0	0.	2	6	6	0	0.	6	27	27	0	0.	2	43
44	Univ. of Michigan, Dept. of Med and Surg.	62	60	2	3.2	16	45	44	1	2.2	12	17	16	1	5.9	10	33	33	0	0.	4	44
45	Univ. of Michigan, Homeopathic College	18	16	2	10.5	4	16	14	2	12.5	2	2	2	0	0.	3	12	12	0	0.	1	45
	MINNESOTA																					
46	University of Minnesota Medical College	62	61	1	1.6	6	55	55	0	0.	4	7	6	1	14.3	5	43	43	0	0.	1	46
	MISSOURI																					
47	American Medical College	90	61	29	32.2	19	63	46	17	27.0	14	27	15	12	44.4	12	43	36	7	16.3	8	47
48	Eclectic Medical University.—E	15	11	4	26.7	3	13	10	3	23.1	2	2	1	1	50.0	2	11	9	2	18.2	1	48
49	Ensworth Medical College	17	12	5	29.4	9	13	11	2	15.4	5	4	1	3	75.0	4	10	10	0	0.	4	49
50	Kansas City Hahnemann Medical College.—H	10	10	0	0.	6	10	10	0	0.	6	.....	.....	.....	.....	.....	6	6	0	0.	3	50
51	St. Louis University School of Medicine	85	82	3	3.5	17	81	80	1	1.2	15	4	2	2	50.0	4	71	69	2	2.8	11	51
52	St. Louis College of Physicians and Surgeons	34	16	18	52.9	13	19	10	9	47.4	7	15	6	9	60.0	9	10	6	4	40.0	3	52
53	Washington University, Medical Dept.	45	45	0	0.	9	36	36	0	0.	6	9	9	0	0.	6	28	28	0	0.	2	53

H—Homeopathic; E—Eclectic.

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1909-1913					Graduates of 1908 and Previous					Graduates of 1913					Marginal Number
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
	NEBRASKA																					
54	John A. Creighton Medical College	57	53	4	7.0	11	54	51	3	5.6	8	3	2	1	33.3	3	29	29	0	0.	3	54
55	Cotner Medical College.—E	11	10	1	9.1	5	9	9	0	0.	3	2	1	1	50.0	2	8	8	0	0.	2	55
56	University of Nebraska, College of Medicine	13	12	1	7.7	4	11	11	0	0.	3	2	1	1	50.0	2	9	9	0	0.	1	56
	NEW HAMPSHIRE																					
57	Dartmouth Medical School	18	16	2	11.1	6	15	13	2	13.3	6	3	3	0	0.	2	7	7	0	0.	4	57
	NEW YORK																					
58	Albany Medical College	69	48	21	30.4	8	67	46	21	31.3	6	3	1	2	66.7	1	32	16	16	50.0	4	58
59	Columbia University, College of P. and S.	147	131	16	10.9	27	127	113	14	11.0	18	20	18	2	10.0	14	70	67	3	4.3	9	59
60	Cornell University Medical College	29	28	1	3.4	7	27	26	1	3.7	3	2	2	0	0.	2	12	12	0	0.	1	60
61	Fordham University, College of Medicine	28	19	9	32.1	3	28	19	9	32.1	3						9	8	1	11.1	1	61
62	Long Island College Hospital	118	88	30	25.4	7	115	85	30	26.1	5	3	3	0	0.	3	43	35	8	18.6	2	62
63	New York Homeopathic Med. Coll. and Hosp.—H	60	39	21	35.0	10	58	37	21	36.2	8	2	2	0	0.	2	42	29	14	33.6	7	63
64	New York Med. Coll. and Hosp. for Women.—H	11	9	2	18.2	4	9	7	2	22.2	3	2	2	0	0.	2	9	7	2	22.2	2	64
65	Syracuse University College of Medicine	39	31	8	20.6	8	36	30	6	16.7	6	3	1	2	66.7	1	12	11	1	8.3	1	65
66	University and Bellevue Hospital Med. College	92	85	7	7.6	10	89	82	7	7.9	3	3	3	0	0.	3	32	28	4	7.7	3	66
67	University of Buffalo, Medical Dept.	58	43	15	25.9	10	52	40	12	23.1	6	6	3	3	50.0	6	25	20	5	20.0	1	67
	NORTH CAROLINA																					
68	Leonard Medical School	53	25	28	51.9	10	50	24	26	52.0	10	3	1	2	66.7	1	22	16	16	50.0	4	68
69	North Carolina Medical College	42	32	10	23.8	7	40	32	8	20.0	7	2	0	2	100.0	2	32	28	4	12.5	5	69
	OHIO																					
70	Cleveland-Pulte Medical College.—H	27	25	2	7.5	4	27	25	2	7.5	4						25	23	2	8.0	4	70
71	Eclectic Medical College.—E	40	34	6	15.0	15	35	30	5	14.3	12	5	4	1	20.0	3	27	26	1	3.7	9	71
72	Ohio-Miami Medical College	31	30	1	3.2	7	31	30	1	3.2	7						26	26	0	0.	3	72
73	Starling-Ohio Medical College	54	53	1	1.9	2	53	52	1	1.9	1	1	1	0	0.	1	53	52	1	1.9	1	73
74	Toledo Medical College	15	15	0	0.	1	15	15	0	0.	1						15	15	0	0.	1	74
75	Western Reserve University	31	31	0	0.	5	30	30	0	0.	4	1	1	0	0.	1	26	26	0	0.	1	75
	OKLAHOMA																					
76	University of Oklahoma, Medical School	9	9	0	0.	1	9	9	0	0.	1						9	9	0	0.	1	76
	OREGON																					
77	University of Oregon, Medical Dept.	23	21	2	8.7	3	21	19	2	9.5	2	2	2	0	0.	2	7	7	0	0.	2	77
	PENNSYLVANIA																					
78	Hahnemann Medical College and Hospital.—H	41	37	4	9.8	9	35	31	4	11.4	5	6	6	0	0.	0	24	23	1	4.2	2	78
79	Jefferson Medical College	154	140	14	9.1	33	137	127	10	7.3	27	17	13	4	23.5	14	84	78	6	7.1	16	79
80	Medico-Chirurgical College of Philadelphia	69	61	8	11.6	10	63	56	7	11.1	7	6	5	1	16.7	4	33	32	1	3.0	6	80
81	Temple University, Medical Dept.	25	20	5	20.0	6	25	20	5	20.0	6						9	9	0	0.	2	81
82	University of Pennsylvania, Medical Dept.	146	139	7	4.8	25	127	120	7	5.5	22	19	19	0	0.	12	74	72	2	2.7	11	82
83	University of Pittsburgh, Medical Dept.	62	55	7	11.3	7	62	55	7	11.3	7						46	43	3	6.5	3	83
84	Woman's Medical College of Pennsylvania	43	37	6	14.0	11	38	33	5	13.2	9	5	4	1	20.0	4	23	20	3	13.0	5	84
	SOUTH CAROLINA																					
85	Medical College of South Carolina	49	40	9	4.9	4	46	38	8	17.4	4	3	2	1	33.3	2	30	28	2	6.7	1	85
	TENNESSEE																					
86	Lincoln Memorial University, Medical Dept.	20	8	12	60.0	7	18	8	10	55.6	5	2	0	2	100.0	2	9	3	6	66.7	2	86
87	Meharry Medical College	158	102	56	35.4	20	143	96	47	32.9	18	15	6	9	60.0	8	96	80	16	16.7	14	87
88	University of Tennessee, Medical Dept.	55	39	16	29.1	12	50	35	15	30.0	11	5	4	1	20.0	3	37	29	8	21.6	8	88
89	University of West Tennessee, Medical Dept.	16	6	10	62.5	3	16	6	10	62.5	3						9	4	5	55.6	3	89
90	Vanderbilt University, Medical Dept.	80	75	5	6.2	19	76	74	2	2.6	18	4	1	3	75.0	4	54	52	2	3.7	12	90
	TEXAS																					
91	Baylor University College of Medicine	22	21	1	4.5	3	22	21	1	4.5	3											91
92	Texas Christian University, School of Medicine	19	18	1	5.3	4	19	18	1	5.3	4						20	19	1	5.0	2	92
93	Southern Methodist University, Medical Dept.	14	14	0	0.	1	14	14	0	0.	1						11	11	0	0.	2	93
94	University of Texas, Medical Dept.	40	39	1	2.5	5	38	38	0	0.	3	2	1	1	50.0	2	13	13	0	0.	1	94
	VERMONT																34	34	0	0.	2	
95	University of Vermont College of Medicine	61	45	16	26.2	7	58	44	14	24.2	7	3	1	2	66.7	1	30	29	1	3.3	6	95
	VIRGINIA																					
96	Medical College of Virginia	61	45	16	26.2	11	58	43	15	25.8	10	3	2	1	33.3	3	45	31	14	31.1	6	96
97	University of Virginia, Dept. of Medicine	29	27	2	6.9	14	18	17	1	5.6	9	11	10	1	9.1	7	8	8	0	0.	5	97
98	University College of Medicine, Richmond	54	49	5	9.3	8	52	47	5	10.2	8	2	2	0	0.	2	42	39	3	7.1	3	98
	WISCONSIN																					
99	Marquette University, Medical Dept.	90	78	12	13.3	9	90	78	12	13.3	9						71	67	4	5.6	5	99
	CANADIAN																					
100	Laval University, Medical Dept.	11	4	7	63.6	5	6	2	4	66.7	5	5	2	3	60.0	5	1	1	0	0.	1	100
101	McGill University, Medical Faculty	15	14	1	6.7	8	8	7	1	12.5	3	7	7	0	0.	4	5	5	0	0.	4	101
102	Queen's University Medical Faculty	15	9	6	40.0	8	10	7	3	30.0	7	5	2	3	60.0	3	2	2	0	0.	2	102
103	University of Manitoba, Manitoba Med. Coll.	2	2	0	0.	2	1	1	0	0.	1	1	1	0	0.	1	1	1	0	0.	1	103
104	University of Toronto, Faculty of Medicine	15	12	3	20.0	10	7	6	1	14.3	5	8	6	2	25.0	6						104
105	Foreign Colleges	89	47	42	47.2	24	22	9	13	59.1	19	67	38	29	43.3	22	1	0	1	100.0	1	105
106	Miscellaneous Medical Colleges	698	466	232	33.2	43	471	313	158	33.5	33	227	154	73	32.1	28	261	213	48	18.3	28	106
107	Undergraduates	251	156	95	37.8	7																107
	Totals	6435	5236	1199	18.6	....	5390	4509	881	16.5	....	794	571	223	28.1	....	3465	3112	353	10.2	....	

H—Homeopathic; E—Eclectic.

TABLE D—NON-RECOGNITION OF MEDICAL COLLEGES

This Table, Based on Official Reports, Shows the Numerous Pitfalls to be Avoided by Prospective Medical Students

| Marginal Number. | COLLEGE | Classification by Council on Medical Education.† | 1 Alabama | 2 Arizona | 3 Arkansas | 4 California | 5 Colorado | 6 Connecticut | 7 Delaware | 8 Dist. of Columbia | 9 Florida | 10 Georgia | 11 Idaho | 12 Illinois | 13 Indiana | 14 Iowa | 15 Kansas | 16 Kentucky | 17 Louisiana | 18 Maine | 19 Maryland | 20 Massachusetts | 21 Michigan | 22 Minnesota | 23 Mississippi | 24 Missouri | 25 Montana | 26 Nebraska | 27 Nevada | 28 New Hampshire | 29 New Jersey | 30 New Mexico | 31 New York | 32 North Carolina | 33 North Dakota | 34 Ohio | 35 Oklahoma | 36 Oregon | 37 Pennsylvania | 38 Rhode Island | 39 South Carolina | 40 South Dakota | 41 Tennessee | 42 Texas | 43 Utah | 44 Vermont | 45 Virginia | 46 Washington | 47 West Virginia | 48 Wisconsin | 49 Wyoming | 50 Porto Rico | Reported Non-Recognition by State Licensing Boards. No. of State Boards apparently giving full recognition. | No. of State Boards reporting college not fully recognized. | Percentage of State Boards granting full recognition. | Marginal Number. |
|---|---|---

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Undoubtedly the less favorable conditions in medical colleges at the time these physicians graduated have some bearing on this result. Justice to such candidates, who have been licensed, but who, for good reasons, desire to change their locations, is the strongest argument for interstate reciprocity in medical licensure, or for special percentage allowances at the examinations for years of practice. The total number of these candidates is diminishing each year as increased reciprocal relations are established. As a rule, the states which do not have reciprocal relations with other states (as Florida, Montana, Massachusetts, Oregon, Washington, see Table L) examined the largest number of old practitioners.

GRADUATES OF 1913 EXAMINED DURING 1913

Table C also gives the results for the graduates of 1913 who were examined during the year by state boards, and shows that 3,465, or 53.8 per cent. of all candidates examined during the year, graduated in 1913, including ten who graduated in Canada and other foreign colleges. Educational statistics show that the medical colleges of the United States graduated 3,981 students last year; therefore 87 per cent. of all graduates in 1913 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve hospital internships without first becoming licensed practitioners, which doubtless accounts for some of the remaining 13 per cent. Of those examined, 353, or 10.2 per cent., failed.

Table C permits of an interesting study of medical schools from the point of view of state board examinations. For some colleges a marked improvement in teaching methods is apparent from the fact that while the percentages of failures are high for old practitioners, they are lower for recent graduates and still lower for graduates of 1913. Other colleges, however, show no improvement either for recent graduates or for graduates of 1913. In the latter a knowledge of these colleges, based on a careful study, which included inspections of the colleges, bears out what the figures of this table indicate, that some of these institutions are teaching medicine no better to-day than they did ten or more years ago.

NON-RECOGNITION OF MEDICAL COLLEGES

Table D shows for each college the states in which its diplomas are not given unqualified recognition. Non-recognition is expressed by different terms in different states. Some boards list colleges as "in good standing" or " not in good standing," some give them as "reputable" or "not reputable;" in New York, full recognition is given only to colleges which are "registered," and in Michigan colleges

TABLE E—COLLEGES GROUPED BY STATES

Showing the Number Examined and Percentage of Failures

All Colleges of	Graduates: Of All Years		Of 1909 to 1913		Of 1908 & Prev.		Of 1913		State Rank According to the Number Examined	Rank According to Successes at Examinations
	Number Examined	Per Cent. Failed	Number Examined	Per Cent. Failed	Number Examined	Per Cent. Failed	Number Examined	Per Cent. Failed		
Alabama	100	26.0	92	25.0	8	37.5	42	33.3	15	26
Arkansas	41	26.9	41	24.4	.....	.....	31	19.4	26	28
California	82	19.5	73	15.1	9	55.6	59	8.5	19	22
Colorado	64	0.	62	0.	2	0.	38	0.	21	1
Connecticut	29	6.9	26	7.7	3	0.	3	0.	29	9
Dist. of Columbia	110	12.0	100	9.0	10	30.0	28	3.6	13	15
Georgia	259	23.6	252	23.1	7	42.9	210	16.7	7	25
Illinois	914	10.4	827	10.4	87	10.3	574	6.9	1	13
Indiana	52	3.8	51	2.0	1	100.0	47	0.	24	6
Iowa	33	3.0	26	0.	7	14.3	23	0.	27	3
Kansas	10	0.	9	0.	1	0.	7	0.	32	1
Kentucky	140	21.4	129	16.3	11	45.5	83	4.8	11	24
Louisiana	101	4.9	97	3.1	4	50.0	68	1.5	14	7
Maine	31	16.1	19	15.8	12	16.7	13	15.4	28	19
Maryland	267	17.6	245	17.1	22	22.7	137	9.5	6	21
Massachusetts	251	15.9	224	20.1	27	11.1	123	15.4	8	17
Michigan	114	3.5	89	3.4	25	4.0	72	0.	12	5
Minnesota	62	1.6	55	0.	7	14.3	43	0.	22	2
Missouri	296	16.5	235	13.6	61	60.7	179	8.4	5	20
Nebraska	81	7.4	74	4.1	7	42.9	46	0.	20	10
New Hampshire	18	11.1	15	13.3	3	0.	7	0.	31	14
New York	651	19.9	608	20.2	43	25.6	307	15.3	2	23
North Carolina	95	40.0	90	36.7	5	80.0	64	31.2	16	30
Ohio	198	5.1	191	4.7	7	14.3	172	2.9	9	8
Oklahoma	9	0.	9	0.	.....	.....	9	0.	33	1
Oregon	23	8.7	21	9.5	2	0.	7	0.	30	11
Pennsylvania	540	9.4	487	9.2	53	11.3	296	5.4	3	12
South Carolina	49	4.9	46	17.4	3	33.3	30	6.7	25	7
Tennessee	329	30.1	303	27.7	26	57.8	205	18.0	4	29
Texas	95	3.2	93	2.1	2	50.0	78	1.3	17	4
Vermont	61	26.2	58	24.2	3	66.7	30	3.3	22	27
Virginia	144	16.0	128	16.4	16	12.5	95	17.9	10	18
Wisconsin	90	13.3	90	13.3	.....	.....	71	5.6	18	16
Totals Ex. in 1913	5339	15.2	4865	14.4	474	23.8	3194	9.5	.....	.....

This table gives data relating to the group of colleges in each state. For example, it shows that, of all the medical schools in New York, 651 graduates of various years were examined by state boards during 1913, and of this number 19.9 per cent. failed. Of the 606 who graduated in recent years, however (1909 to 1913 inclusive), 20.2 per cent. failed; of the 43 who graduated previous to 1909, 25.6 per cent. failed, and of the 307 graduates of 1913, 15.3 per cent. failed.

The ninth column gives the rank of each state group of colleges according to the number of applicants. The Illinois group of colleges leads, having 914 graduates examined by state boards during 1913, followed by New York with 651, Pennsylvania with 540, Tennessee with 329, Missouri with 296 and Maryland with 267.

The tenth column gives the rank of each state group of colleges according to the success of the graduates at the state board examinations. It is interesting to compare the figures of these two last columns. While the Illinois group ranks first according to the number examined it ranks thirteenth in the success of its graduates at examinations. While New York ranks second as to the number examined, it ranks twenty-third in the success of its graduates at examinations and while Pennsylvania ranks third as to the number examined, it ranks twelfth in the success of its graduates at examinations.

RESULTS FOR LARGER COLLEGES

Comparison with Previous Years (Table F)

Year	Colleges Represented	Total Examined	Per Cent. Failed	Colleges, 100 or More Examined	Total Examined	Per Cent. Failed	Colleges, 50 to 100 Examined	Total Examined	Per Cent. Failed	Colleges, Less than 50 Examined	Total Examined	Per Cent. Failed	Foreign, Misc., and Non-grads. Exam'd	Per Cent. Failed
1904	149	6241	16.4	14	2271	11.7	28	1817	16.9	107	2153	21.0	794	43.1
1905	153	6411	18.3	14	2350	12.4	37	2543	17.7	102	1518	28.9	759	51.1
1906	151	6638	17.3	16	2504	14.5	34	2381	16.9	96	2053	21.3	1097	42.5
1907	146	6207	12.3	12	1626	12.7	36	2578	14.7	98	2008	13.6	1064	55.5
1908	137	6491	17.2	19	2596	15.6	26	1825	15.5	92	2070	20.8	1279	14.6
1909	134	6341	16.2	17	2476	16.9	27	1920	12.3	90	1945	19.2	946	42.6
1910	121	5953	15.3	17	2379	13.3	25	1791	13.7	79	1783	19.3	1051	36.5
1911	119	6002	17.2	18	2508	11.0	28	1895	17.1	73	1659	20.1	898	37.6
1912	110	5563	17.1	12	1776	15.6	31	2148	17.3	67	1639	18.5	790	37.0
1913	99	5339	15.2	15	2143	12.6	27	815	37.5	57	1381	17.1	1096	35.2

TOTAL RESULTS

Comparison with Previous Years

Year	Table A: Total Examined	Examined—Passed	Examined—Failed	Percentage Failed	B: Recent Grads. Examined	Percentage Failed	C: Older Prac. Examined	Percentage Failed	A: Non-Grads. Examined	Percentage Failed	K: Registered without Written Examination	Total Registered
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	600	37.7	472	61.9	394	6074
1906	8035	6368	1667	20.7	6250	16.4	793	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	60.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	706	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	958	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1265	6501

Totals for 1912 include figures for Pennsylvania not published last year.

are divided into groups, only those of Group I having full recognition. This table also shows the latest rating given to each college by the Council on Medical Education.

The information given in this table is from official correspondence, and the data have been carefully verified. From the point of view of a prospective student who may be selecting a medical college, the facts are simply astounding. The table shows that there are only 31 medical colleges which have complete recognition in all states! If the student has completed two or more years of work in a recognized college or university before he seeks entrance to a medical college, he may take his choice from among 33 other colleges; otherwise he will find that his diploma will not enable him to secure a license in six states. If he gets his medical training in one of the remaining 43 colleges, he will awaken on graduation to the fact that his diploma is not recognized in from 10 to 32 states!

NON-RECOGNITION OF MEDICAL COLLEGES

(Based on Table D)

Not recognized by licensing boards of	Number of Colleges
From 24 to 32 states	21
From 10 to 15 states	22
From 2 to 9 states	33
Fully recognized in all states	31
Total	107

Without the information published in Table D, these state board statistics would be not merely incomplete—they would be actually misleading. For example, in 1912, thirteen graduates of the Eclectic Medical University of Kansas City, Mo., were examined by the Arkansas Eclectic Board of Medical Examiners and all passed. None was examined elsewhere during the year, so the statistics showed no failures for this college during 1912, making it appear to

TABLE F—COLLEGES HAVING FIFTY OR MORE EXAMINED

TABLE SHOWS TOTAL NUMBER EXAMINED, TOTAL NUMBER PASSED, TOTAL NUMBER FAILED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES

COLLEGE	Graduates of All Years					Graduates of 1909-1913					Graduates of 1908 and Previous					Graduates of 1913					Marginal Number
	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	No. of States	
Chicago College of Medicine and Surgery	266	220	46	17.3	30	265	219	46	17.4	32	1	1	0	0.	1	205	183	22	10.7	25	22
University of Illinois, College of Medicine	199	186	13	6.5	23	179	168	11	6.2	20	20	18	2	10.0	10	126	123	3	2.4	9	26
Meharry Medical College	158	102	56	35.4	20	143	96	47	32.9	18	15	6	9	60.0	8	96	80	16	16.7	14	87
Jefferson Medical College	154	140	14	9.1	32	137	127	10	7.3	27	17	13	4	23.5	14	84	78	6	7.1	16	79
Rush Medical College	153	151	2	1.3	24	124	123	1	0.4	20	29	28	1	3.4	17	88	88	0	0.	14	27
Columbia University, Coll. of Phys. and Surgs.	147	131	16	10.9	27	127	113	14	11.0	18	20	18	2	10.0	14	70	67	3	4.3	9	59
University of Pennsylvania, Medical Dept.	146	139	7	4.8	25	127	120	7	5.5	22	19	19	0	0.	12	74	72	2	2.7	11	82
University of Louisville, Medical Dept.	140	114	26	21.4	20	129	108	21	16.3	22	11	6	5	45.5	8	83	79	4	4.8	13	32
Atlanta College of Physicians and Surgeons	128	113	15	11.7	10	123	110	13	10.6	10	5	3	2	40.0	4	116	105	11	9.5	9	16
Long Island College Hospital	118	88	30	25.4	7	115	85	30	26.1	5	3	3	0	0.	2	43	35	8	18.6	2	62
Northwestern University Medical School	116	112	4	3.4	20	97	94	3	3.1	16	19	18	1	5.3	10	55	54	1	1.8	3	25
Tufts College Medical School	109	92	17	15.6	12	106	90	16	15.1	12	3	2	1	33.3	3	71	61	10	14.1	6	42
Bennett Medical College	104	90	14	13.5	22	100	86	14	14.0	19	4	4	0	0.	4	62	51	11	17.7	10	21
Johns Hopkins University, Medical Dept.	104	98	6	5.8	23	97	91	6	6.2	22	7	7	0	0.	6	55	53	2	3.6	16	36
Tulane University, Medical Dept.	101	96	5	4.9	13	97	94	3	3.1	11	4	2	2	50.0	2	68	67	1	1.5	8	33
Harvard Medical School	94	87	7	7.4	23	78	72	6	7.7	20	16	15	1	6.3	12	34	31	3	8.8	9	41
University and Bellevue Hosp. Med. College	92	85	7	7.6	10	89	82	7	7.9	7	3	3	0	0.	3	52	48	4	7.7	3	66
American Medical College	90	61	29	32.2	19	66	46	17	27.0	14	27	15	12	44.4	12	43	36	7	16.3	8	47
Marquette University, Medical Dept.	90	78	12	13.3	9	90	78	12	13.3	9	.....	.....	.....	.....	.....	71	67	4	5.6	5	99
University of Maryland, School of Medicine	88	66	22	25.0	18	80	61	19	23.7	16	8	5	3	37.5	6	45	41	4	8.9	10	38
St. Louis University, School of Medicine	85	82	3	3.5	17	81	80	1	1.2	15	4	2	2	50.0	4	71	69	2	2.8	11	51
Vanderbilt University, Medical Dept.	80	75	5	6.2	19	76	74	2	2.6	18	4	1	3	75.0	4	54	52	2	3.7	12	90
College of Physicians and Surgeons, Baltimore	74	56	18	24.3	19	67	51	16	23.5	16	7	5	2	28.1	6	36	30	6	16.7	9	37
Albany Medical College	69	48	21	30.4	8	67	46	21	31.3	6	2	2	0	0.	2	32	23	9	28.1	1	58
Medico-Chirurgical College of Philadelphia	69	61	8	11.6	10	62	55	7	11.1	7	6	5	1	16.7	4	33	32	1	3.0	6	80
University of Colorado, School of Medicine	64	64	0	0.	11	62	62	0	0.	11	2	2	0	0.	2	38	38	0	0.	5	11
University of Michigan, Coll. of Med. & Surg.	62	60	2	3.2	16	45	44	1	2.2	12	17	16	1	5.9	10	33	33	0	0.	4	44
University of Minnesota, Coll. of Med. & Surg.	62	61	1	1.6	6	55	55	0	0.	4	7	6	1	14.3	5	43	42	0	0.	1	46
University of Pittsburgh, Medical Dept.	62	55	7	11.3	7	62	55	7	11.3	7	.....	.....	.....	.....	.....	46	43	3	6.5	3	83
Medical College of Virginia	61	45	16	26.2	11	58	43	15	25.8	10	3	2	1	33.3	3	45	31	14	31.1	6	96
University of Vermont, College of Medicine	61	45	16	26.2	7	58	44	14	24.2	7	3	1	2	66.7	1	30	29	1	3.3	6	95
New York Homeopathic Med. Coll. & Hosp.	60	39	21	35.0	10	58	37	21	36.2	8	2	2	0	0.	2	43	29	14	32.6	7	63
Atlanta School of Medicine	59	48	11	18.6	7	58	48	10	17.1	8	1	0	1	100.0	1	40	37	3	7.5	4	17
Hahnemann Medical Coll. & Hosp., Chicago	50	50	9	15.3	17	46	41	5	10.9	11	13	9	4	30.8	9	28	27	1	3.6	6	23
University of Buffalo, Medical Dept.	58	43	15	25.9	10	52	40	12	23.1	6	6	3	3	50.0	6	25	20	5	20.0	1	67
John A. Creighton Medical College	57	53	4	7.0	11	54	51	3	5.6	9	3	2	1	33.3	3	29	29	0	0.	2	54
University of Tennessee, Medical Dept.	55	39	16	29.1	12	50	35	15	30.0	11	5	4	1	20.0	3	37	29	8	21.6	8	88
Starling-Ohio Medical College	54	53	1	1.9	2	53	52	1	1.9	1	1	1	0	0.	1	52	52	1	1.9	1	73
University College of Medicine, Richmond	54	49	5	9.2	8	52	47	5	10.2	6	2	2	0	0.	2	71	67	4	5.6	5	99
Leonard Medical School	53	25	28	51.9	10	50	24	26	52.9	10	3	1	2	66.7	1	22	16	16	50.0	4	68
Indiana University School of Medicine	52	50	2	3.8	5	51	50	1	2.0	4	1	0	1	100.0	1	47	47	0	0.	1	28
Birmingham Medical College	51	31	20	39.2	7	47	30	17	36.2	6	4	1	3	75.0	2	24	12	12	50.0	3	1
Totals	3958	3381	577	14.5	....	3631	3126	505	13.8	....	327	253	74	22.6	....	2431	2207	224	9.2	..	

This table is especially interesting, since it gives data relating to the 42 larger medical colleges arranged according to the number of graduates examined. This allows of comparison between colleges having classes of nearly equal size. This time the Chicago College of Medicine and Surgery had the largest number, the position having been held by the College of Physicians and Surgeons of Chicago in 1912, 1906 and 1907. In 1908 Jefferson Medical College had the highest number examined. In 1909, 1910 and 1911 the University of Louisville Medical Department had the largest number examined. The first place from the standpoint of the number examined, however, does not always mean first place from the standpoint of scholarship. Note the percentages of failures.

Of the 15 colleges having 100 or more examined, 7 have failure percentages of less than 10, while 8 stand out prominently with large failure percentages of 10.9, 11.7, 13.5, 15.6, 17.3, 21.4, 25.4 and 35.4. This marked difference holds for five of the colleges even in respect to recent graduates (of 1909 to 1913 inclusive) as well as for the graduates of 1913. The three highest failure percentages are for Meharry Medical College, 35.4, Long Island College Hospital, 25.4 and the University of Louisville, 21.4.

Of the 27 colleges having between 50 and 100 graduates examined, 11 had failure percentages of less than 10; 5 had failure percentages between 10 and 20, and 11 had failure percentages above 20, the five colleges having the highest failure percentages being Leonard Medical School, 51.9; Birmingham Medical College, 39.2; New York Homeopathic Medical College, 35.0; American Medical College, St. Louis, 32.2, and Albany Medical College, 30.4.

The average percentage of failures for these larger colleges for graduates of 1908 and previous years was 22.6; for graduates of 1909 to 1913 inclusive (recent graduates), 13.8; for graduates of 1913, 9.2, and for graduates of all years, was 14.5. Of the 5,239 graduates of the 99 colleges in the United States which had graduates examined by state boards in 1913, these larger schools furnished 3,958 or 74.1 per cent.

TABLE G—COMPARISON OF RESULTS IN HOME STATES AND ELSEWHERE. BASED ON TABLE B

COLLEGES		Results in Home State			Results in Other States		
	Total Examined	Passed	Failed	Per Cent. Failed	Passed	Failed	Per Cent. Failed
ALABAMA **—28.1**	**92**	**46**	**22**	**32.3**	**23**	**1**	**4.2**
Birmingham Medical College	47	24	17	41.5	6	0	0.
University of Alabama	45	22	5	18.5	17	1	5.6
ARKANSAS **—9.0**	**41**	**22**	**9**	**29.0**	**8**	**2**	**20.0**
University of Arkansas	41	22	9	29.0	8	2	20.0
CALIFORNIA **+26.8**	**73**	**59**	**9**	**13.2**	**3**	**2**	**40.0**
California Eclectic Medical College	7	2	4	66.7	1	0	0.
College of P. and S., Los Angeles	24	20	1	4.8	2	1	33.3
Hahnemann Med. Coll. of the Pacific	13	12	1	7.7	....	....	....
Leland Stanford Junior University	7	7	0	0.	....	....	....
Oakland Coll. of Medicine and Surgery	4	4	0	0.	....	....	....
College of P. and S., San Francisco	8	4	3	42.9	0	1	100.0
University of California	10	10	0	0.	....	....	....
COLORADO **—**	**62**	**44**	**0**	**0.**	**18**	**0**	**0.**
University of Colorado	62	44	0	0.	18	0	0.
CONNECTICUT **+2.4**	**28**	**14**	**1**	**6.7**	**10**	**1**	**9.1**
Yale Medical School	28	14	1	6.7	10	1	9.1
DISTRICT OF COLUMBIA **+13.0**	**100**	**31**	**0**	**0.**	**60**	**9**	**13.0**
George Washington University	32	12	0	0.	19	1	5.0
Georgetown University	31	10	0	0.	15	6	28.6
Howard University	37	9	0	0.	26	2	7.1
GEORGIA **+39.7**	**252**	**142**	**11**	**7.2**	**52**	**47**	**47.5**
Atlanta College of Phys. and Surgs.	123	83	0	0.	27	13	32.5
Atlanta School of Medicine	58	32	1	3.0	16	9	36.0
Georgia Coll. of Eclectic Med. and Surg.	4	....	....	....	1	3	75.0
Southern Coll. of Med. and Surg.	20	2	9	81.8	0	15	100.0
University of Georgia	41	25	1	3.8	8	7	46.7
ILLINOIS **—0.9**	**827**	**493**	**59**	**10.7**	**248**	**27**	**9.8**
Bennett Medical College	100	58	10	14.7	28	4	14.3
Chicago College of Med. and Surg.	265	151	29	16.1	68	17	20.0
Hahnemann Medical College and Hosp.	46	24	5	17.2	17	0	0.
Jenner Medical College	16	10	6	37.5	....	....	....
Northwestern University Med. School	97	54	1	1.8	40	2	4.8
University of Illinois	179	122	8	6.2	46	3	6.1
Rush Medical College	124	74	0	0.	49	1	2.0
INDIANA **+33.3**	**51**	**48**	**0**	**0.**	**2**	**1**	**33.3**
Indiana University, School of Medicine	51	48	0	0.	2	1	33.3
IOWA **—**	**26**	**24**	**0**	**0.**	**2**	**0**	**0.**
State Univ. of Iowa, College of Med.	19	17	0	0.	2	0	0.
State Univ. of Iowa, Homeo. Dept.	7	7	0	0.	....	....	....
KANSAS **—**	**9**	**8**	**0**	**0.**	**1**	**0**	**0.**
University of Kansas, School of Med.	9	8	0	0.	1	0	0.
KENTUCKY **+4.4**	**129**	**48**	**4**	**7.7**	**60**	**17**	**22.1**
University of Louisville, Medical Dept.	129	48	4	7.7	60	17	22.1
LOUISIANA **+6.3**	**97**	**49**	**0**	**0.**	**45**	**3**	**6.3**
Tulane University, Medical Dept.	97	49	0	0.	45	3	6.3
MAINE **+15.9**	**19**	**10**	**1**	**9.1**	**6**	**2**	**25.0**
Medical School of Maine	19	10	1	9.1	6	2	25.0
MARYLAND **—1.5**	**245**	**62**	**14**	**18.4**	**141**	**28**	**16.9**
Eastern University	1	....	....	....	0	1	100.0
Johns Hopkins University	97	28	1	3.4	63	5	7.3
College of Physicians and Surgeons	67	7	4	36.3	44	12	21.4
University of Maryland	80	27	9	25.0	34	10	22.7
MASSACHUSETTS **+6.7**	**224**	**113**	**18**	**13.7**	**74**	**19**	**20.4**
Boston University	16	8	1	11.1	7	0	0.
College of Physicians and Surgeons	24	2	7	77.8	8	7	46.7
Harvard Medical School	78	34	1	2.9	38	5	11.6
Tufts College Medical School	106	69	9	11.5	21	7	25.0
MICHIGAN **+11.8**	**89**	**72**	**0**	**0.**	**15**	**2**	**11.8**
Detroit College of Medicine	28	27	0	0.	1	0	0.
Univ. of Michigan, Dept. of Medicine	45	32	0	0.	12	1	7.7
Univ. of Michigan, Homeo. Dept.	16	13	0	0.	2	1	33.3
MINNESOTA **—**	**55**	**50**	**0**	**0.**	**5**	**0**	**0.**
University of Minnesota	55	50	0	0.	5	0	0.
MISSOURI **+7.8**	**235**	**116**	**13**	**10.1**	**87**	**19**	**17.9**
American Medical College	63	26	7	21.2	20	10	33.3
Eclectic Medical Univ., Kansas City	13	....	....	....	10	3	23.1
Ensworth Medical College	13	2	1	33.3	9	1	10.0
Kansas City Hahnemann Med. Coll.	10	1	0	0.	9	0	0.
St. Louis University	81	54	0	0.	26	1	3.7
St. Louis Coll. of Phys. and Surgs.	19	6	5	45.5	4	4	50.0
Washington University	36	27	0	0.	9	0	0.
NEBRASKA **+2.0**	**74**	**54**	**2**	**3.6**	**17**	**1**	**5.6**
John A. Creighton Medical College	54	37	2	5.1	14	1	6.7
Cotner Medical College	9	7	0	0.	2	0	0.
University of Nebraska	11	10	0	0.	1	0	0.
NEW HAMPSHIRE **—15.9**	**15**	**3**	**1**	**25.0**	**10**	**1**	**9.1**
Dartmouth Medical School	15	3	1	25.0	10	1	9.1
NEW YORK **—15.4**	**608**	**388**	**115**	**22.9**	**89**	**8**	**7.5**
Albany Medical College	67	41	21	33.9	5	0	0.
Columbia Univ., Coll. of P. and S.	127	86	12	12.2	27	2	6.9
Cornell University Medical School	27	20	1	4.8	6	0	0.
Fordham University	28	15	8	34.8	4	1	20.0
Long Island College Hospital	115	77	29	27.4	8	1	11.1
New York Homeo. Med. Coll. and Hosp.	58	18	19	70.4	19	2	6.5
N. Y. Med. Coll. and Hosp. for Women	9	6	2	25.0	1	0	0.
Syracuse University	36	25	6	19.4	5	0	0.
Univ. and Bellevue Hosp. Med. Coll.	89	63	5	7.3	19	2	9.5
University of Buffalo, Med. Dept.	52	35	12	25.5	5	0	0.
NORTH CAROLINA **—1.1**	**90**	**29**	**18**	**38.3**	**27**	**16**	**37.2**
Leonard School of Medicine	50	6	12	66.7	18	14	43.7
North Carolina Medical College	40	23	6	20.7	9	2	18.2
OHIO **+13.7**	**191**	**154**	**2**	**1.3**	**28**	**7**	**20.0**
Cleveland-Pulte Medical College	27	21	1	4.5	4	1	20.0
Eclectic Medical College	35	14	0	0.	16	5	23.8
Ohio-Miami Medical College	31	25	0	0.	5	1	16.7
Starling-Ohio Medical College	53	52	1	1.9	....	....	....
Toledo Medical College	15	15	0	0.	....	....	....
Western Reserve University	30	27	0	0.	3	0	0.
OKLAHOMA **—**	**9**	**9**	**0**	**0.**	....	....	....
University of Oklahoma, School of Med.	9	9	0	0.	....	....	....
OREGON **—14.3**	**21**	**12**	**2**	**14.3**	**7**	**0**	**0.**
University of Oregon	21	12	2	14.3	7	0	0.
PENNSYLVANIA **+10.7**	**487**	**277**	**23**	**1.1**	**165**	**22**	**11.8**
Hahnemann Medical College and Hosp.	35	26	2	7.1	5	2	28.6
Jefferson Medical College	137	54	7	11.5	73	3	3.9
Medico-Chirurgical Coll. of Philadelphia	63	48	4	7.7	8	3	27.3
Temple University	25	16	3	15.8	4	2	33.3
University of Pennsylvania	127	69	2	2.8	51	5	8.9
University of Pittsburgh	62	50	4	7.4	5	3	37.5
Woman's Med. Coll. of Pennsylvania	38	14	1	6.7	19	4	17.4
SOUTH CAROLINA **+35.7**	**46**	**36**	**6**	**14.3**	**2**	**2**	**50.0**
Medical College of South Carolina	46	36	6	14.3	2	2	50.0
TENNESSEE **+19.7**	**303**	**104**	**20**	**16.1**	**115**	**64**	**35.8**
Lincoln Memorial University	18	3	8	72.7	5	2	28.6
Meharry Medical College	143	51	3	5.6	45	44	49.4
University of Tennessee	50	19	0	0.	16	15	48.4
University of West Tennessee	16	5	7	58.3	1	3	75.0
Vanderbilt University	76	26	2	7.1	48	0	0.
TEXAS **—2.4**	**93**	**83**	**2**	**2.4**	**8**	**0**	**0.**
Baylor University	22	19	1	5.0	2	0	0.
Texas Christian University	19	14	1	6.7	4	0	0.
Southern Methodist University	14	14	0	0.	....	....	....
University of Texas	38	36	0	0.	2	0	0.
VERMONT **+35.9**	**58**	**19**	**0**	**0.**	**25**	**14**	**35.9**
University of Vermont	58	19	0	0.	25	14	35.9
VIRGINIA **—5.7**	**128**	**59**	**14**	**19.2**	**48**	**7**	**12.7**
Medical College of Virginia	58	25	12	32.4	18	3	14.3
University of Virginia	18	3	0	0.	15	1	6.7
University College of Medicine	49	31	2	6.1	16	3	18.7
WISCONSIN **+28.1**	**90**	**70**	**8**	**10.3**	**8**	**4**	**33.3**
Marquette University	90	70	8	10.3	8	4	33.3
Totals **+6.8**	**4365**	**2746**	**374**	**11.9**	**1420**	**325**	**18.6**

In this table the graduates of each college who were examined in the state in which the college is located are grouped in one column, while graduates of that college examined in other states are in another column. For example under Massachusetts, this table shows that, of the 24 graduates of College of Physicians and Surgeons of Boston, who were examined by state boards during 1913, 9 were examined in Massachusetts, of which number 2 passed and 7, or 77.8 per cent., failed, while 15 were examined in other states, of which number 8 passed and 7, or 46.7 per cent., failed. This table shows that in the majority of instances the graduates have better chances of passing examinations in the state in which their colleges are located than they have elsewhere. This should always be considered in making comparisons between colleges. A low standard college, by having all its graduates examined in the home state, may sometimes show a lower percentage of failures than a college of much higher grade which has graduates examined by several states.

The heavy-faced figures give the results by states. The first column of heavy-faced figures preceded by the + and — signs, shows the differences between the percentages of examination in the home state and the examinations elsewhere. The plus sign indicates that graduates have better chances of success in the state where the colleges from which they graduated are located; the minus sign indicates that the chances are better elsewhere. The most marked variations in 1913 were in the examination of the graduates of the colleges of Georgia, 39.7 per cent.; Vermont, 35.9; South Carolina, 35.7; Indiana, 33.3; Wisconsin, 28.1, and California, 26.8, in all of which the chances of the graduates were better in the home state. The marked variations where the graduates' chances were better elsewhere were in Alabama, 28.1 per cent.; New Hampshire, 15.9; New York, 15.4 and Oregon, 14.3 per cent. The danger of forming hasty conclusions from these percentages taken alone, however, is very well shown by the figures for Indiana where there is one high grade school, where only 3 graduates were examined in "other states" and where the failure of one of them could have been accidental. More reliable are the percentages in Tennessee, Illinois, Pennsylvania and Missouri where larger number from larger groups of colleges were examined in "other states." The totals show that on the average the chances of success were 6.8 per cent. better if the graduate took the examination in the state where his college was located.

rank among the best teaching institutions in the country. How different the picture, however, when the facts are told that the Eclectic Medical University is not recognized in Missouri, its home state, and that the diplomas are not recognized in twenty-eight states!

There are 32 state licensing boards which are utilizing to some extent, at least, their legal power to refuse recognition to medical colleges which do not meet certain educational standards or which otherwise do not meet the requirements in the respective states. In the other 18 states, either the practice acts do not give the boards the right to enforce a requirement of reasonable standards, or else the boards are apparently not exercising their privileges. It is clearly evident that graduates of low-standard medical colleges which are not eligible for license in 32 states will flock to the other 18 states which have not removed recognition. These 18 states, therefore, will hereafter literally be the dumping-ground of the output of the low-grade medical colleges until needed legal powers are granted to the licensing boards or until those boards take action in the matter.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages as compared with previous years is of interest. The total examined in 1913—6,435—is the lowest number of candidates examined for license in any year since the compiling of these statistics began. The total examined in 1913 shows a decrease of 444 below 1912 and a decrease of just 1,600 below 1906, when 8,035 candidates were examined. Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables I, J and K. By all methods—examination, reciprocity, under exemption, etc.—6,501 physicians were licensed during 1913, or 222 less than in 1912, and 1,364 less than in 1906, when 7,865 physicians were licensed.

Other deductions from the larger tables have been made and are presented in Tables E to H, which are worthy of careful study.

STUDY OF COLLEGES BY STATE GROUPS

Table E is based on the first three large tables and gives the results for the group of colleges located in each state. It shows what states are furnishing the largest number of physicians, and the failure percentages indicate what kind of training these colleges are furnishing so far as may be judged from the failures of their graduates before state boards. By comparing the percentages of the first column with the other columns it can be seen whether or not there has been any reduction in failures for graduates of recent years. Of the 33 states having medical colleges which grant degrees, 15 furnished 100 or more candidates examined. Of these 15 groups of colleges, 4 had failure percentages of less than 10 per cent.; 7 had failure percentages between 10 and 20, and 4 had over 20 per cent. of failures. The highest failure percentage was obtained by the North Carolina group with 40. Of the states having 100 or more candidates examined, however, the highest failure percentage was obtained by the Tennessee group, which had 30.1 per cent., followed by the Alabama group with 26.0 per cent., and the Georgia group with 23.6 per cent. of their graduates failing. Other deductions are given with the table.

STUDY OF LARGER COLLEGES

Table F is also based on the three large tables and gives the results of state board examinations as they affect the 42 largest medical colleges. Although these colleges represent 42.4 per cent. of the medical colleges in the United States having graduates examined, they furnished 74.1 per cent. of all the candidates for license coming from medical schools of the United States. This table show, however, that the graduation of large classes by a medical college does not prove excellence of teaching, since several colleges having 100 or more examined have very high failure percentages, and this holds true even for the graduates of 1913. In fact, the larger the college from the point of view of the number of students and graduates, the more serious is inferior teaching ability, indicated by a high failure percentage. In fairness to the medical student, and in the interests of the public, such schools should greatly strengthen their teaching facilities or reduce the size of their classes.

Altogether for these schools, 577, or 14.5 per cent., failed, as compared with 17.1 per cent. of failures for the 1,381 candidates from the 57 colleges having less than 50 each examined.

Besides the graduates of the medical colleges of the United States, 1,096 candidates were examined, made up of 58 grad-

TABLE H—PHYSICIANS EXAMINED BY STATE BOARDS, 1909 TO 1913, INCLUSIVE

STATE	1909		1910		1911		1912		1913		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	7	20	94	64	107	54	84	72	90	57	649	382	267	41.1
Arizona	19	6	15	9	28	9	32	10	26	9	163	120	43	26.4
Arkansas	111	131	96	28	108	30	124	27	91	28	774	530	244	31.5
California	184	73	204	47	227	59	256	60	163	36	1309	1034	275	21.0
Colorado*	36	15	48	5	33	8	41	1	58	5	245	211	34	13.9
Connecticut	52	13	69	18	73	20	70	18	77	51	461	341	120	26.0
Delaware	19	2	21	2	22	0	22	1	12	1	102	96	6	5.9
Dist. of Columbia	46	21	32	13	25	8	49	7	55	5	261	207	54	20.7
Florida*	70	12	102	15	87	23	114	31	116	49	619	489	130	21.0
Georgia	143	28	148	9	148	28	178	17	171	24	804	708	106	11.9
Idaho	54	23	47	24	41	13	35	12	21	2	272	198	74	27.2
Illinois	645	117	631	100	432	154	505	134	567	98	3383	2780	603	17.8
Indiana	102	3	97	9	114	7	95	4	101	1	533	509	24	4.5
Iowa	98	14	113	4	75	6	131	7	107	4	559	524	35	6.3
Kansas	121	20	66	25	56	25	50	12	89	7	471	382	89	18.9
Kentucky	120	18	119	35	88	36	88	8	78	12	602	493	109	18.1
Louisiana	121	33	104	34	123	30	128	36	69	20	608	545	153	21.9
Maine	55	10	73	5	86	11	74	17	46	9	280	334	52	13.4
Maryland*	130	33	131	32	160	39	160	46	108	40	879	689	190	21.6
Massachusetts*	213	95	197	100	226	74	227	54	215	74	1475	1078	397	26.9
Michigan	140	2	131	3	127	1	159	3	99	5	668	656	12	1.8
Minnesota	90	25	76	22	58	7	55	5	71	4	413	350	63	15.3
Mississippi*	130	154	84	150	115	113	56	48	61	18	930	446	484	52.0
Missouri	212	70	181	23	182	38	213	32	200	25	1176	988	188	15.9
Montana	68	22	73	24	44	19	50	9	57	16	383	292	91	23.8
Nebraska	74	8	80	0	67	11	88	10	87	2	427	396	31	7.3
Nevada	9	0	12	1	8	1	8	1	10	3	53	47	6	11.3
New Hampshire	20	10	34	8	18	5	36	7	17	3	158	125	33	20.9
New Jersey	76	12	68	17	107	15	59	14	69	7	439	374	65	14.8
New Mexico	11	4	6	1	2	2	6	2	6	1	41	31	10	24.4
New York	566	72	515	72	536	164	433	153	511	205	3227	2561	666	20.6
North Carolina	111	18	79	15	92	30	87	37	77	34	580	446	134	23.1
North Dakota	41	6	42	5	25	1	15	7	16	13	171	139	32	18.7
Ohio	192	13	172	10	170	8	199	12	189	3	968	922	46	4.7
Oklahoma	92	44	100	42	123	39	94	27	58	5	624	467	157	25.2
Oregon*	95	50	93	55	94	50	96	65	112	36	746	490	256	34.3
Pennsylvania	474	27	451	52	515	27	356	170	345	59	2476	2141	335	13.5
Rhode Island	23	10	23	10	32	5	30	12	28	4	186	145	41	22.0
South Carolina	46	33	61	44	94	27	90	35	99	47	576	390	186	32.3
South Dakota	60	21	52	9	53	5	16	1	30	1	248	211	37	14.9
Tennessee*	277	4	315	53	213	42	313	76	306	94	1602	1424	268	15.9
Texas*	181	19	162	5	151	19	151	13	168	11	880	813	67	7.6
Utah	28	4	34	4	22	3	20	2	24	3	144	128	16	11.1
Vermont	38	2	21	1	51	1	45	2	24	2	187	179	8	4.3
Virginia	136	40	122	14	115	43	105	30	87	19	711	565	146	20.6
Washington	148	40	154	43	102	43	69	27	63	22	720	536	184	25.6
West Virginia	105	10	88	25	88	22	66	20	58	17	499	405	94	18.8
Wisconsin	56	13	71	7	107	7	68	19	98	8	454	400	54	11.9
Wyoming	12	0	10	0	8	0	11	0	10	1	52	51	1	1.9
Totals	7287		7004		6960		6879		6435		34565			
Registered	5857		5712		5578		5466		5236		27849			
Rejected	1430		1292		1382		1413		1199		6716			
Per Cent. Rejected	19.6		18.4		19.9		20.5		18.6		19.4			

This table gives the number of candidates registered and rejected by examination by each state during each of the last five years. The last four columns give the totals for the five years and the percentage rejected by each state.

Six states registered over 1,000 candidates by examination in the five years, these being California, Illinois, Massachusetts, New York, Pennsylvania and Tennessee. Over 2,000 were registered in only two states, Illinois and New York. Of the 1,424 candidates registered in Tennessee in the last five years, 591 or 41.5 per cent. were non-graduates.

The highest percentages of rejections were 52.0 in Mississippi, followed by Alabama, Oregon, South Carolina and Arkansas, with 41.1, 34.3, 32.3 and 31.5, respectively. The states marked with an asterisk (*) included non-graduates among those examined during the last five years, and for that reason would supposedly have higher percentages rejected. Such, however, was not the case in Tennessee. On the other hand, in several states the boards refuse to recognize certain colleges and eliminate many candidates prior to the examination by a careful scrutiny of credentials and as a result there are lower percentages of failures at the examinations.

The lowest failure percentages were in Michigan, 1.8; Wyoming, 1.9; Vermont, 4.3; Indiana, 4.5; Ohio, 4.7; Delaware, 5.9, and Iowa, 6.3.

uates of Canadian colleges, 89 foreign college graduates, 698 graduates of miscellaneous colleges and 251 non-graduates. Of these 1,096 candidates, 386, or 35.2 per cent., failed.

RESULTS IN HOME STATES AND ELSEWHERE

Table G is of much interest, because it shows for each college the results of examinations in the state in which the college is located, as compared with the results of examinations in other states, where there is less possibility of local influence. Of all recent graduates examined in 1913, 2,746, or 56.4 per cent., took their license examinations in the states in which the colleges from which they graduated were located. Of this number 11.9 per cent. failed on the average, whereas, of the 1,420 candidates examined in other states, 18.6 per cent. failed. This would indicate that, as a rule, the student's chances of passing the license examination are better if he stays in the college's home state. In this connection it is interesting to note that no graduate of any of the colleges in the District of Columbia, in Michigan or Vermont failed in the examinations given in those states, although of the graduates of these colleges who were examined in other states, the failures of these groups of colleges were, respectively, 13, 11.8 and 35.9 per cent. There were no failures either at home or in other states for graduates of the colleges of Colorado, Iowa, Kansas or Minnesota. The student's chances for success at home and elsewhere were equal or nearly so in three instances, these being for the colleges of Illinois, Maryland and North Carolina; the student's chances were better in the home state in eighteen instances, while in seven instances the student's chances were better if he went to some other state.

TABLE I—REGISTRATION BY STATE BOARDS DURING THE YEAR 1913

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1909-1913	Graduates, 1908 and Previous	Non-graduates			
Alabama	81	2	...	...	....	90
Arizona	14	12	....	....	....	26
Arkansas	72	19	...	51	....	142
California	100	63	....	39	....	202
Colorado	49	3	1	89	....	142
Connecticut	68	9	....	5	....	22
Delaware	11	1	....	9	....	21
District of Columbia	48	7	....	5	....	60
Florida	68	48	....	...	...	116
Georgia	169	2	....	29	....	200
Idaho	9	12	....	4	....	25
Illinois	541	26	....	47	....	614
Indiana	90	11	....	15	....	116
Iowa	97	10	....	32	....	139
Kansas	85	4	....	40	....	129
Kentucky	76	2	....	18	3	99
Louisiana	67	2	....	10	...	79
Maine	39	7	....	7	....	53
Maryland	101	8	....	21	...	130
Massachusetts	171	25	19	....	....	215
Michigan	92	7	....	69	1	169
Minnesota	68	3	....	50	....	121
Mississippi	57	4	...	6	....	67
Missouri	177	23	....	45	...	245
Montana	26	31	....	....	...	57
Nebraska	81	6	....	15	...	102
Nevada	3	7	....	29	....	39
New Hampshire	12	5	...	4	....	21
New Jersey	65	4	....	88	....	157
New Mexico	4	2	....	6	35	47
New York	482	29	....	27	3	541
North Carolina	75	2	....	25	....	102
North Dakota	12	4	....	12	....	28
Ohio	185	4	...	72	....	261
Oklahoma	52	6	....	48	....	106
Oregon	53	43	15	....	....	111
Pennsylvania	231	15	....	20	....	366
Rhode Island	24	4	...	....	....	28
South Carolina	92	7	...	4	....	103
South Dakota	23	7	...	5	....	35
Tennessee	171	14	121	17	....	323
Texas	147	21	...	139	....	307
Utah	20	4	....	8	....	32
Vermont	23	1	...	2	....	26
Virginia	80	7	...	12	....	99
Washington	43	20	....	.	....	63
West Virginia	54	4	....	24	....	82
Wisconsin	95	3	...	68	....	166
Wyoming	6	4	....	7	....	17
Totals	4509	571	156	1223	42	6501

This table shows the total number registered during 1913 in each state by the various methods. The first three columns show those registered by examination; the first column showing the recent graduates registered, the second column, the old practitioners (graduates of 1908 and previous years) and the third column, the non-graduates. The fourth column shows the number licensed through reciprocity; the fifth column shows those licensed under various exemption clauses in the practice acts, such as because of national fame or by recognition of diplomas (New Mexico). It is interesting to note that, as a rule, states which have registered large numbers through reciprocity have examined very few old practitioners. The chief exception is California, which has only recently begun registration under a practice act providing for the recognition of licenses granted in other states. The last column shows the total number of physicians registered by all methods in each state during the year. Only five states registered over 300 each, these being Illinois, 614; New York, 541; Pennsylvania, 366; Tennessee, 323, and Texas, 307.

TOTAL RESULTS FOR FIVE YEARS

Table H shows, so far as reports were obtainable, the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 23, 1913, p. 602, Table 12), shows what would be expected, that the states having the largest number of medical graduates examined the largest number of physicians. Now, only one state, New Mexico, will register candidates on presentation of diploma, without examination. This table shows only those registered by examination. The next table (I) shows the total registered by all methods.

TOTAL REGISTRATION IN 1913

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table I, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 6,501 physicians were registered by all methods during 1913, as compared with 6,723 in 1912, 6,824 in 1911, 7,352 in 1910 and 7,865 in 1906. By reciprocity or under exemption clauses, 1,265 were licensed in 1913 as compared with 1,257 in 1912, 1,246 in 1911 and 1,640 in 1910. Over 100 were registered by all methods in twenty-six states, over 200 in ten and over 300 in five, the largest numbers being registered in Illinois with 614, New York with 541, Pennsylvania with 366, Tennessee with 323 and Texas with 307. There were 156 non-graduates registered in five states, 121 (77.5 per cent.) having been registered in Tennessee, 19 in Massachusetts, 15 in Oregon and 1 in Colorado.

Table J gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state. This is usually described by the term "reciprocity," which conveys the idea that the state which accepts the license of another must be granted the same courtesy by the state issuing the original license. The term does not well describe this method of registration, however, since some state boards consider it more fair to the physician to accept his credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. In fact, the new practice act of California requires the acceptance of the licenses issued by any state if the applicant's credentials are otherwise acceptable. Had not reciprocal relations been established by the 41 states shown in the table, 1,223 physicians, the majority of whom have been in practice for many years, would have been compelled to undergo the ordeal of a second trying examination.

RECIPROCITY AND EDUCATIONAL STANDARDS

As formerly administered, reciprocal relations between some states tended to lower rather than to elevate educational standards, and this is still true in some states. A study of these statistics will show that in several instances such relations exist between states differing widely in their standards of education and in the methods and severity of their examinations. It can be seen, therefore, that a loosely administered provision for reciprocity provides a wide-open door through which unqualified candidates can obtain registration. There are some boards, however, which wisely reserve and exercise the right to reject any candidate who does not possess satis-

TABLE J.—PHYSICIANS REGISTERED THROUGH RECIPROCITY BY STATE EXAMINING BOARDS DURING 1913

STATE BOARDS OF	Total Reg. by Recip., Ex. State	Alabama	Arizona	Arkansas	Colorado	Connecticut	Delaware	Dist. of Col.	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Army
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Arkansas	51	..	..	..	..	..	..	..	..	6	..	4	4	..	..	6	5	..	1	..	..	..	6	..	..	1	..	..	..	..	..	..	1	11	..	2	..	..	..	2	..	..	..	..	..	..	2	..	..
California	39	..	3	..	..	..	..	..	..	..	..	4	..	2	..	..	..	1	5	1	..	..	..	2	..	..	..	..	..	2	1	4	..	..	1	..	1	5	..	1	..	1	2	..	1	..	..	..	..
Colorado	89	2	..	1	..	1	..	2	..	..	..	22	4	6	4	2	1	..	..	1	4	2	..	7	..	4	..	..	3	3	..	..	5	2	1	6	..	..	2	..	1	1	1	1	..	1	..	..	..
Connecticut	5	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Delaware	9	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	..
District of Columbia	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	2	..	..	..	..	..	..
Georgia	29	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	1	1	5	..	2	..	2	1	..	..	..	..	..	..	1	5	..	..	..	..	..	..	..	..	4	..	..	..	2	..	1	..	..
Idaho	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..
Illinois	47	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	2	..	8	2	..	3	..	2	1	..	1	..	..	..	1	3	..	..	3	..	..	..	1	..	1	..	..	2	8	..	..
Indiana	15	..	..	..	1	..	..	..	..	..	..	2	..	..	2	..	..	..	1	..	4	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	1	..	..	..	..	..	1	..	..
Iowa	32	..	..	..	3	..	1	..	..	..	..	..	..	..	2	..	..	..	1	..	1	2	..	6	..	11	..	..	..	1	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..
Kansas	40	..	..	..	1	..	..	..	..	..	..	5	1	2	..	2	..	..	..	..	..	..	..	15	..	5	..	..	..	..	..	..	..	1	..	..	1	..	..	..	5	1	..	..	1	..	..	..	..
Kentucky	18	..	..	..	1	..	..	..	1	..	..	2	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	3	..	..	..	..	..	..	2	..	..	3	..	1	..	..	1
Louisiana	10	..	..	..	..	..	..	1	..	..	..	3	..	..	1	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maine	7	..	..	..	..	..	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	..	..	..	..	..	..
Maryland	21	..	..	..	..	1	..	..	4	..	..	..	..	..	..	..	..	1	..	..	1	1	..	2	..	..	..	..	..	..	2	..	2	..	..	..	..	..	..	1	..	..	3	..	3	..	..	..
Michigan	69	..	..	2	..	..	..	..	1	..	..	21	4	..	1	3	..	..	1	..	..	..	..	1	..	..	..	1	..	9	..	1	9	..	1	4	..	..	1	1	..	1	1	..	2	4	..	..
Minnesota	50	..	..	..	..	..	..	..	..	..	..	21	..	7	..	..	..	..	1	..	4	..	..	1	..	1	..	..	..	..	..	2	1	..	..	1	..	1	..	..	..	..	..	..	..	9	1	..
Mississippi	6	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	1	..	..	..	..
Missouri	45	..	..	..	1	..	..	..	5	..	..	9	1	6	16	..	1	..	2	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Nebraska	15	..	3	..	..	..	..	..	..	..	..	2	..	4	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..	..
Nevada	29	..	..	..	..	..	..	..	..	2	..	4	3	1	1	1	..	..	..	..	..	3	..	1	..	1	..	..	..	..	..	..	1	..	3	..	4	..	..	1	1	..	1	..	..	..	..	..	..
New Hampshire	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	1	1	..	..
New Jersey	88	..	..	..	..	..	4	..	..	..	..	2	1	..	..	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	42	..	..	..	..	21	..	..	..	..	..	1	1	..	..	2	..	..	..	..
New Mexico	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New York	27	..	..	..	..	4	..	..	..	..	..	..	1	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	..	6	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
North Carolina	25	..	..	..	..	1	..	1	1	..	..	1	..	..	1	4	..	3	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2	3	..	3	..	..	2	..	1	..	..	..	..
North Dakota	12	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	1	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Ohio	72	..	..	1	2	..	..	2	..	..	..	4	3	2	2	1	..	..	6	..	15	1	..	3	..	1	..	..	1	..	4	..	..	..	..	..	16	..	..	..	..	..	..	..	8	..	..	..	..
Oklahoma	48	..	..	12	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	6	1	..	1	..	..	..	3	..	..	..	..	..	..	..	..	..	..	8	11	..	..	2	..	..	..	..
Pennsylvania	20	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	5	..	3	..	..
South Carolina	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..
South Dakota	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tennessee	17	..	..	..	..	..	..	..	3	..	..	3	..	1	1	..	..	..	..	..	2	1	1	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..
Texas	139	..	..	17	..	..	..	1	..	..	..	23	1	2	3	10	..	1	2	..	3	1	..	8	..	2	..	..	1	..	..	..	..	..	6	51	..	..	..	..	..	..	1	1	..	5	..	..	..
Utah	8	..	..	..	..	..	..	..	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Vermont	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Virginia	12	..	..	1	..	..	..	3	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	1	..	..	..	..	..	1	1	..	..
West Virginia	24	..	..	..	..	..	1	..	1	..	..	2	..	..	..	3	..	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	1	4	..	1	..	..	2	..	..	5	..	..	..	..	..	..	..
Wisconsin	68	..	..	1	1	1	..	..	..	..	..	31	1	1	..	3	..	..	2	..	4	10	..	1	..	..	1	..	..	..	..	..	1	2	1	..	4	..	..	2	..	..	..	..	..	..	1	..	..
Wyoming	7	..	..	..	..	..	..	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..
Total	1223	2	3	37	12	2	8	17	1	26	0	171	33	36	32	44	13	9	42	2	66	29	15	61	0	34	4	1	16	8	70	14	6	50	74	3	86	3	10	29	19	12	11	26	2	41	28	4	1
Number	....	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

This table shows the number of physicians registered by each state through reciprocity during 1913. Reciprocity is not the best term to use, however, since some states, California and Colorado, for instance, register candidates who have satisfactory credentials including licenses, regardless as to whether the states issuing the original licenses reciprocate with them or not. Taking New York as an example, reading from left to right, the table shows that New York registered a total of 27 applicants through reciprocity during 1913, of which number 4 came from Delaware, 1 from Indiana, 13 from Michigan, 6 from New Jersey and 3 from Ohio. Reading from above downward, the table shows that 70 physicians left New York during 1913 and registered in other states under the reciprocity provision, of which number 1 registered in Arkansas, 4 in California, 3 in Colorado, 4 in Connecticut, 1 in Georgia, 9 in Michigan, 42 in New Jersey, 2 in North Carolina, 4 in Ohio and 1 in Utah. Texas leads, having registered 139 physicians through reciprocity in 1913, followed by Colorado, 89; New Jersey, 88; Ohio, 72; Michigan, 69 and Wisconsin, 68. It is interesting to note in what states the original licenses were issued. The table shows that of the 1,223 applicants registered through reciprocity 171, or 14.0 per cent., obtained their original licenses in Illinois and 86, the next largest number, were first registered in Pennsylvania. The states which furnished the next highest numbers were Oklahoma, 74; New York, 70; Michigan, 66; Missouri, 61 and Ohio, 50.

TABLE K—RECIPROCAL REGISTRATION IN FIVE YEARS (SHOWING WHAT STATES ISSUED THE ORIGINAL LICENSES)

STATE	Physicians Going from States Named During					Totals
	1909	1910	1911	1912	1913	
Alabama	2	....	3	1	2	8
Arizona*	2	....	....	....	3	5
Arkansas	1	52	11	15	37	116
California	1	2	1	....	....	4
Colorado	12	13	16	9	12	62
Connecticut*	2	....	....	1	2	5
Delaware	1	6	9	15	8	39
District of Columbia	13	11	23	18	17	82
Florida*	1	1	....	1	1	4
Georgia	10	14	7	13	26	70
Idaho*	1	....	....	5	....	6
Illinois	320	286	236	193	171	1206
Indiana	46	50	37	40	33	206
Iowa	77	84	63	58	36	318
Kansas	41	63	50	27	32	213
Kentucky	30	74	42	36	43	225
Louisiana	2	9	8	10	13	42
Maine	18	15	14	23	9	79
Maryland	25	41	52	48	42	208
Massachusetts*	3	....	2	2	2	9
Michigan	51	51	69	50	66	286
Minnesota	33	31	29	29	29	153
Mississippi	1	1	3	5	15	25
Missouri	58	91	59	67	61	336
Montana*	....	3	....	1	....	4
Nebraska	53	42	46	29	34	204
Nevada	2	3	2	3	4	14
New Hampshire	3	1	6	1	7	23
New Jersey	29	16	14	18	10	87
New Mexico*	7	1	1	4	8	21
New York	50	224	42	46	70	441
North Carolina	7	7	16	12	14	56
North Dakota	5	8	7	12	6	38
Ohio	47	45	40	39	50	221
Oklahoma	5	21	3	28	74	131
Oregon*	....	....	....	....	3	3
Pennsylvania	7	21	12	57	86	183
Rhode Island*	1	....	....	....	....	1
South Carolina	7	5	4	5	3	24
South Dakota	1	....	2	1	10	14
Tennessee	21	45	28	51	39	184
Texas	4	23	10	24	19	80
Utah	4	1	2	3	12	22
Vermont	24	27	36	30	11	128
Virginia	26	31	28	25	26	136
Washington*	....	2	7	3	2	14
West Virginia	33	45	45	29	41	193
Wisconsin	46	31	41	35	28	181
Wyoming	7	1	2	4	4	18
Alaska	....	..	....	1	1	2
U. S. Army	3	....	....	2	1	6
U. S. P. H. Service	....	2	....	....	....	2
Canada	....	2	....	..	..	2
Foreign and Misc.	10	....	....	3	....	13
Totals	1167	1502	1128	1141	1223	6161

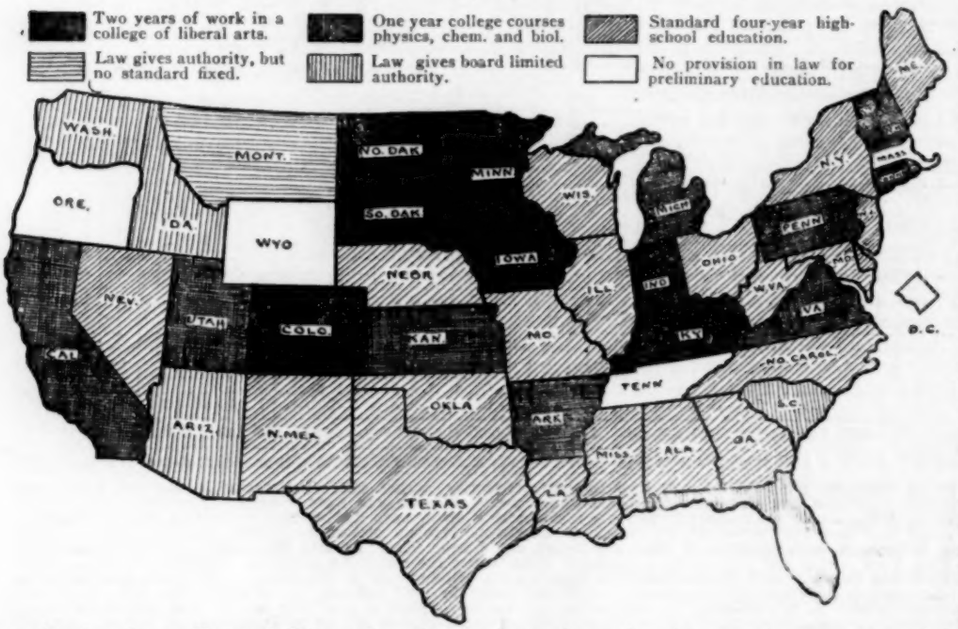
This table shows that 6,161 candidates were registered through reciprocity during the last five years. Registration by reciprocity has been gradually increasing although there was a drop in 1911. A study of the totals for the different states shows that of the 6,161 registered during the four years 1,206, or 19.5 per cent., obtained their original licenses in Illinois. This is more than twice the number coming from any other state. The states furnishing the next highest numbers are New York, 441; Missouri, 336, and Iowa, 318. The states marked with an asterisk (*) do not have reciprocal relations and would not appear in this table except for the fact that some states, like California, Colorado and New Jersey, will accept a physician's credentials if satisfactory, whether the state issuing his original license returns the favor or not.

factory credentials even though he is licensed in a state with which it has reciprocal relations. Some boards also prudently require that the applicant, before he is eligible to registration through reciprocity, must have been engaged in the actual and reputable practice of his profession for at least a year in the state in which the original license was granted. Without this provision a candidate may be tempted to obtain his original license in the state giving the easiest examination. Without the one-year residence clause, therefore, standards of examination are apt to be lowered. Again, some states wisely refuse to register by reciprocity any candidate who has failed to pass their own examinations. In the establishing of reciprocal relations, therefore, the state board should reserve and exercise the discretionary power to refuse to register any candidate who could not originally have registered in that state, and, secondly, the board should require that the applicant shall have been in actual practice of medicine for at least a year before he is eligible to registration under the reciprocity provision.

In the light of the foregoing statement in regard to reciprocity, it will be interesting to study Table K, which shows in what states the original licenses were granted of those who were registered elsewhere under the reciprocity provision during the last five years. It should be noted that of the 6,161 physicians licensed through reciprocity during the last five years, the original licenses of 1,206 (19.6 per cent.) were obtained in Illinois, more than twice as many as came from any other state. In New York 441 physicians took their original license examinations, 336 in Missouri, 318 in Iowa and 296 in Michigan.

The chart shows the standards of preliminary education for each state. There are 7 states, Colorado, Iowa, Indiana, Kentucky, Minnesota, North Dakota and South Dakota, in which the standard is two years of collegiate work; in 11 states the standard is one year of college work; and in 20 states the standard is a four-year high-school education. There are six states in which the law seriously divides the authority between independent boards, or where the standard is less than a four-year high-school education, while in four states, Massachusetts, Oregon, Tennessee, Wyoming and in the District of Columbia, the practice acts make no provision for preliminary education. Table L shows the states in which the boards have adopted the requirement of one or two years of collegiate work as a minimum. It is known that in several other states the adoption of these higher requirements in the near future is contemplated.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION



In Conclusion

In the publication of these statistics the endeavor has been to give an absolutely fair presentation of facts, a knowledge of which is always beneficial. Without question this annual presentation of the results of state licensing examinations has had a most helpful influence on medical education and medical licensure in this country. We reiterate our acknowledgments to the state licensing boards whose ready cooperation and complete reports have made the publication of these data possible.

TABLE L—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now eighteen states which have adopted requirements of preliminary education in addition to a standard four-year high-school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

State Examining Board of—	Number of Years Required	Affects Students Matriculating	Affects All Applicants
Minnesota	2	1908-09	1912
North Dakota	2	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914
Utah	1	1910-11	1914
Iowa	2	1911-12	1915
South Dakota	2	1911-12	1915
Vermont	1	1912-13	1916
Kentucky	2	1914-15	1918
Michigan	1	1914-15	1918
New Hampshire	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island	1	1914-15	1918
Virginia	1	1914-15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919

TABLE M—ADVANCES IN STATE LICENSE REQUIREMENTS IN TEN YEARS

Requirement or provision	States having provision for			States still having no provision for
	1904	1914	Increase	
Preliminary Education—				
Any requirement	20	45	25	4
A standard four-year high school education or higher	10	37	27	12
One or two years of college work as a minimum	0	18	18	31
That all applicants be graduates of a medical college	36	45	9	4
That all applicants undergo an examination for license	45	48	3	1
Requirement of practical tests in the license examinations	1	7	6	32
Full authority by board to refuse recognition to low-grade colleges	14	33	19	16
Boards refusing to recognize low-grade colleges	5	22	27	17
Reciprocal relations with other states	27	39	12	10
Single boards of medical examiners	36	42	6	7

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STATISTICS OF STATE BOARD EXAMINATIONS

We publish this week, for the eleventh consecutive year, tabulated statistics based on examinations conducted by state medical licensing boards. This year, however, the matter presented includes other information having a direct bearing on state boards and on methods of registration. For example, Table D, showing in what states certain colleges are not recognized, although not based on the reports of examinations, has a very important influence on the results of those examinations and is absolutely essential in the forming of an accurate conclusion regarding any state board or any medical college. All the data published, however, are based on official reports, and the figures have been carefully verified, so that reliance may be placed on the facts presented. Reports were received from all state boards this year and the statistics are complete. This is in marked contrast with the statistics of 1903, when the publication of these data began. At that time reports from a large number of boards could not be secured for the reason that no permanent records of the examinations had been kept.

IMPORTANCE OF THESE STATISTICS

The casual reader glancing over the tables will probably not appreciate the conditions which make the publication of these data so important. Medical education and medical licensure in this country are controlled by the forty-nine individual states, each of which in these matters is legally independent of the others. In the forty-nine states there are forty-nine different practice acts, providing for about sixty different licensing boards, no two of which entirely agree in the details of the methods followed or the standards enforced. No legal provision exists in this country for a national control in these matters, for a coordination of standards or for a cooperation between the different boards. This lack of a national control, or of uniformity of standards and of effectiveness of methods, is a very serious matter. In some states the public is well protected against illiterate and incompetent doctors, while in other states, because of poor laws or political boards, the right to practice medicine is easily secured by any person, no matter how incompetent he may be. If a doctor has had his license revoked in one state for malpractice or other reasons, he promptly goes to another state, where he seldom fails to secure a license. If he is caught again, he as promptly transfers his allegiance to a third state. To correct these serious conditions, a greater uniformity of standards and effectiveness of methods was essential among state boards. Toward that end the American Medical Association since 1903 has been voluntarily collecting and publishing information such as appears this week. If there were a national control of the licensing of physicians in the United States, such as exists in practically every other country, it would not be necessary for the American Medical Association to do this work.

The various tables deserve careful attention. A few additional comments are worth while, and the reader is urged to make a further study by referring to the tables and the descriptive matter accompanying them.

FACTS REGARDING EACH STATE

These tables give valuable information regarding medical licensure in each state. For example, Tables A and B show the number of candidates who appeared for examination, the colleges from which they graduated, the number from each college who passed and the number from each who failed, the total number registered, the total number rejected and the percentage of candidates rejected. This table allows of comparison between the totals and the percentages of one state and those of other states. If a state board's examinations are unusually lenient for graduates of medical schools located in that state as compared with the results for the same colleges in other states, the fact will be shown in Table G. To decide whether a low percentage of rejections means "leniency" or not, the reader should note in Table D whether the board has *refused to examine* graduates of low-grade colleges. If the board examines the graduates of only high-grade colleges, a low failure percentage is to be expected. If, on the other hand, a board admits graduates of any and all schools, or perhaps also non-graduates, an unusually high failure percentage would be expected. If in the latter circumstances there is still a low failure percentage, then "leniency" is perhaps too mild a term. The total number of candidates examined, registered and rejected in the last five years by each board and the percentage of rejections are shown in Table H. This permits comparison not only of the figures of the last year with those of the four previous years, but also of the figures of one state with those of the others. Table I shows for each state the totals registered by all methods, by examination, by reciprocity and under exemption clauses. This table also shows the number of non-graduates licensed. Table J shows the number of candidates licensed by

each state through reciprocity and shows in what states the original licenses were granted. Table K shows the total number of physicians from each state who, during the last five years, secured licenses elsewhere through reciprocity. Table L gives the eighteen states which have adopted higher standards of preliminary education and the dates when the higher requirements are effective. The preliminary standards of all states are shown in the chart.

FACTS REGARDING EACH COLLEGE

The tables also give much information regarding medical colleges. For example, Tables A and B show in what states graduates of each college were examined; they show the number who passed and the number who failed in each state, the total examined in all states, the number who passed, the number who failed, the percentage of failures and the number of states in which graduates of the college were admitted to examinations. In fact, Tables A, B and C permit a comparative study of medical colleges of much value in connection with any investigation of medical colleges. Table E shows for the group of colleges located in each state the total number of graduates examined in all states, the percentage of failures and the rank of each group according (1) to the number examined and (2) to the success of the graduates at the examinations. Table F furnishes an interesting study of the larger colleges — those having fifty or more graduates examined during the year — and allows of comparison between colleges of nearly equal size. The mere fact that a college has large classes is no indication that it furnishes a better medical training. In fact, the data in Table F show that usually the contrary is true. Before a conclusion is formed regarding any college it is highly important to note in Table D whether or not its graduates are refused examination in any states. A low-grade college may occasionally have a very low percentage of failures by having all its graduates appear before a lenient board. The examination results taken alone would seem to indicate good teaching methods. Such an erroneous conclusion is prevented, however, if it is found, as shown in Table D, that graduates of the college are not admitted to examination in from ten to thirty-two states. A fairly good college may occasionally have a high percentage of failures, especially if they are in states having more rigid examinations. It is seldom, however, that a well-equipped and well-conducted medical college will, year after year, receive as high as 15 or 20 per cent. of failures of its graduates at state licensing examinations. These statistics regarding colleges are very interesting, and throw an important side-light on the classification[1] of medical colleges of the United States prepared by the Council on Medical Education, which is based on an actual inspection of the colleges.

1. The Journal A. M. A., Aug. 23, 1913, p. 585.

TOTAL REGISTRATION IN ALL STATES

These statistics show for each state the number of candidates coming not only from each medical school in this country, but also from Canadian and other foreign medical colleges. In short, they give an accurate record of the number and source of those who are entering the practice of medicine each year in this country. Without the data published this week, it could not be known that 6,501 physicians were licensed in this country during 1913, and that this included 5,236 who were registered by examination, including 156 non-graduates, 42 who were registered under the various exemption clauses, and 1,223, mostly old practitioners, who were registered under the provision for reciprocity.

STATISTICS ACCURATE AND RELIABLE

The work of collecting and publishing these statistics was begun by The Journal in 1903, but since the Council on Medical Education began active work in 1905, they have been developed as an important part of the Council's work. Every report received from the state licensing boards is now carefully checked, duplications are avoided, errors are corrected and the statistics are thereby rendered accurate and reliable. This is made possible through the enormous amount of data collected by the Council regarding medical colleges, students and graduates. Through the possession by the Council of complete alumni lists of all existing medical colleges, the Council is in position to avoid charging a college with a failure which may have been erroneously accredited to it when, in fact, the candidate who failed was a graduate of some other college.

INFLUENCE ON MEDICAL LICENSURE

These statistics have had a much greater effect, however, than that rendered by a mere numerical record of physicians examined and licensed, and probably no one has recognized their value more than the state licensing boards themselves. As a result, in many states splendid systems of record-keeping are now to be found where formerly, in several states at least, no records whatever were kept, and in several other states the systems were far from perfect. During the last several years, furthermore, they have furnished abundant argument for practical tests in state license examinations and have undoubtedly had much to do with the improved character of these examinations and the better methods of conducting them. A study of the statistics for several years will show that, although there has been a gradual improvement, there is still much that needs to be done.

INFLUENCE ON MEDICAL COLLEGES

The influence on medical colleges resulting from the publication of these statistics has been tremendous. Whereas previously these institutions may have been unaware of the weaknesses in their methods of teach-

ing, these statistics have shown them how frequently their graduates fail at the state license examinations. There has been marked improvement in their equipment, better teachers have been secured and better methods adopted, and it can be seen by a review of the statistics published during the last several years that a number of colleges have materially reduced the failure percentages of their graduates at these examinations.

COOPERATION MUTUALLY ADVANTAGEOUS

As will be understood by the careful reader, these statistics have their greatest value when studied in connection with other data collected by the Council on Medical Education and published in THE JOURNAL and in the Council's reports. The state board statistics are made more accurate and reliable through the data kindly furnished by medical colleges; they are based on reports received direct from state boards; but through the careful checking of those reports, errors are frequently corrected, the state boards are notified and in this way state records are also made more accurate. The statistics published this week, therefore, have been made possible only through the cordial cooperation of both the state boards and medical colleges, and for this cooperation we again express our acknowledgments.

THE SOURCES OF DANGER IN ANTIMENINGITIS SERUM

Despite the undeniable success which has followed the antiserum treatment of cerebrospinal fever since its introduction as a therapeutic measure in 1906, important contributions that have appeared from time to time in THE JOURNAL[1] must serve to direct attention to the possible sources of danger from the administration of the serum. The papers referred to include reports of alarming symptoms and in a number of instances, death. The untoward results occurred in such close relation to the administration of the treatment that the latter, rather than the disease, seemed to be responsible.

To account for these accidents during the administration of the serum, various explanations have been advanced. Thus, at different times it has been asserted that these deaths were due to rapid lysis of the meningococcus and the consequent liberation of a toxic amount of bacterial toxin; to the production, through the introduction of large amounts of a foreign protein, of anaphylactic shock; to increased intracranial tension, from the too rapid or too free use of the antiserum, and the consequent interference with the vital centers, or to the presence in the serum of poisonous preservatives which were carried directly to the centers of respiration, with a resulting paralysis and death. Among these possible sources of danger, that attributable to sudden increase in intracranial pressure was promptly recognized. Precautions to avoid it are seen in the directions of Flexner and Jobling[2] to make the injection slowly and carefully, and previously to withdraw from the spinal canal at least as much fluid as the amount of antiserum to be injected. Furthermore, Koplik[3] favors the gravity method of introducing the serum rather than the syringe method.

Trikresol has been employed in this country as a preservative of the serum. This has been charged with toxic effects on the patients; but it must be noted that sudden deaths have been reported in cases in which the serum used contained no preservative. Dr. Worth Hale of the staff of the Hygienic Laboratory of the United States Public Health Service has lately undertaken to determine, by experiments on animals,[4] the responsible factors in the deaths from subdural injections of antimeningitis serum. From his studies it would appear that death from the introduction of the fluid may result either from an increase in intracranial tension or from the presence in the serum of trikresol. The danger from trikresol, however, seems much greater and more certain than that which may possibly arise from increased pressure, and on that account an effort should be made to discover a serum preservative which would not have the peculiarly toxic action of trikresol on the central nervous system. Failing in that, antimeningitis serum should be dispensed in sterile containers free from any preservative.

The practical outcome of the governmental investigation is found in the suggestion that blood-pressure observations should be made in every case in which cerebrospinal fluid is withdrawn or serum is introduced into the meninges. By this procedure, warning will be given of any possible danger either from increased intracranial tension or from the poisonous action of any of the serum preservatives. Further, also, it would seem much wiser to discard the syringe method of introducing serum in favor of the gravity method, which permits the use of much greater care and gentleness in making the administration.

As Hale and others have pointed out, the occasional undesirable effect of the serum treatment should not, however, be considered as militating against its regular and invariable use in all cases of the disease, for the dangers which may arise from the treatment are not to be feared in any such way as is the disease itself. The risk, as compared with that from the disease itself, is very small. Therefore too much emphasis cannot be laid on the advisability and importance of the early and free use of antimeningitis serum in all

1. Sophian, A.: A New Method for Controlling the Administration of Serum in Epidemic Meningitis, March 23, 1912, p. 843. Parmelee, A. H.: Epidemic Cerebrospinal Meningitis, March 1, 1913, p. 659. Kramer, S. P.: A Possible Source of Danger in the Use of Antimeningitis Serum, May 3, 1913, p. 1348. , Flexner, S.: Accidents Following the Subdural Injection of the Antimeningitis Serum, June 21, 1913, p. 1937.

2. Flexner and Jobling: Jour. Exper. Med., 1908, x, 141.

3. Koplik: Med. Rec., New York, 1908, lxxiv, 557.

4. Hale, W.: The Cause of Death from Subdural Injection of Serum, Bull. 91, Hyg. Lab., U. S. P. H. S., 1914, p. 1.

cases of epidemic cerebrospinal meningitis, even though occasionally its administration may be followed by untoward effects. Physicians will be glad to learn that work in developing a suitable preservative for serum is under way in the government laboratories.

PELLAGRA AND INFECTION

Any one who reads the current medical literature would be rash, indeed, to look on the problem of the etiology of pellagra as solved in any sense. Those who adhere to the view that corn in the dietary is in some way involved in the production of the disease are in turn divided in opinion as to whether the pathogenetic factor is of the nature of a nutritive deficiency in the corn regimen or is some toxic product developed under unusual conditions by biologic agencies in the cereal before it is eaten. If the zeists are thus uncertain among themselves with respect to the cause of pellagra, no greater accord exists among the not inconsiderable number of thoughtful persons who adhere to the theory of an infectious or microbiotic etiologic agency. Several commissions have already begun an extensive survey of the pellagra situation in this country and an investigation of the possible causative or contributory influences at work. Among the more recent ones the Thompson-McFadden Pellagra Commission of the New York Post-Graduate Medical School and Hospital has already published a preliminary report of its undertaking.[1] In this the following tentative conclusions are reached: The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by their study. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown. The commission has discovered no evidence incriminating flies of the genus *Simulium* in the causation of pellagra, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, *Stomoxys calcitrans* would appear to be the most probable carrier. They are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease. No specific cause of pellagra has been recognized.

Further light is shed on the foregoing views by observations recently related by Drs. Siler, Garrison and MacNeal of the commission.[2] A statistical study of the foods used and of the occurrence of pellagra in six mill-villages, including about 5,000 persons, failed to reveal any consistent relationship between the use of any particular food and the occurrence of pellagra. A somewhat similar statistical study of the location of domicile of old cases of pellagra in relation to domicile of the remaining population in these mill-villages has shown that new cases of pellagra developed almost exclusively in persons living in the same house in which such antecedent cases had occurred or in houses next door. In other words, the disease spread from a preceding or antecedent case as a center, a phenomenon which can be explained satisfactorily, in their opinion, only by assuming that pellagra is an infectious disease. Apparently, it is not readily transmitted to any considerable distance.

As was observed in the field studies, pellagra has spread most readily in communities in which unscreened surface-privies were in use. In those portions of the city of Spartanburg, S. C., equipped with a water-carriage system of sewage disposal, new cases of pellagra were relatively few. In two mill-villages completely equipped with a water-carriage sewer system, it was impossible to find cases of pellagra which had certainly originated there. Persons suffering from pellagra contracted elsewhere were not lacking in these communities.

With a further group of investigators from the United States Public Health Service in the field and other agencies at work on the problems of pellagra, it would be premature to issue a final verdict on a subject which has provoked such a diversity of opinion. Hence we merely present to our readers the latest contributions from reliable sources while awaiting that final accord of the findings which characterizes the successful result of scientific research.

1. Siler, J. F., Garrison, P. E., and MacNeal, W. J.: Pellagra, a Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission, The Journal A. M. A., Jan. 3, 1914, p. 8.
2. Siler, J. F., Garrison, P. E., and MacNeal, W. J.: A Consideration of Certain Foods and of Proximity to a Previous Case as Factors in the Etiology of Pellagra, Proc. Soc. Exper. Biol. and Med., 1914, xi, 94; The Relation of Methods of Disposal of Sewage to the Spread of Pellagra, ibid., p. 94.

SYMPTOMS IN CHRONIC MORPHINISM INDUCED BY WITHDRAWAL OF THE DRUG

Despite the interesting facts which have been developed in the past decade or more concerning the underlying features of chronic morphinism, a number of phenomena have been left unexplained. Our understanding of the remarkable tolerance to the alkaloid exhibited by the addict has especially been promoted by the researches of Faust,[1] who clearly demonstrated that the organism habituated to morphin develops an increasing capacity to destroy it. He found, for example, that after a single injection of this substance in animals, about 70 per cent. of it could be recovered through the usual channels of excretion—the stomach and intestine. With repeated and gradually increasing dosage, on the other hand, the quantity of morphin found in the feces lessens until finally, even when doses lethal to the unaccustomed subject are administered, no morphin whatever may appear in the excretions. Inasmuch as on analysis the organs were found under such circumstances to contain only very small amounts of the

1. Faust, E. S.: Arch. f. exper. Path. u. Pharmakol., 1900, xliv, 217.

alkaloid, Faust logically concluded that in developing a tolerance to it the organism acquires a capacity to destroy far greater quantities of morphin than it originally possessed.

This cannot completely explain the decreasing sensitiveness of the morphinomaniac to the drug. Even when morphin is subcutaneously administered and thus promptly reaches the blood-stream for distribution the addict is unduly tolerant to large doses. It cannot be assumed that this is due solely to an acquired power of rapid destruction (within a few minutes); for this would mean an almost inconceivably accelerated detoxication of the substance. Rübsamen[2] has observed that rats which are gradually immunized to large quantities of morphin and which can take double the usual lethal dose with impunity, may, at a given moment, show the presence in their bodies of an amount of the alkaloid sufficient in itself to produce toxic effects in an untreated animal of the same species. He therefore assumes that the body develops not only an increased power of destroying this drug, but also a greatly diminished cellular sensitiveness to its action.

Important as these aspects of the continued use of morphin doubtless are for an understanding of the altered physiologic conditions it produces, they furnish no clue to an added feature which must be taken into account in practice. The sudden withdrawal of the drug does not result merely in negative symptoms, but often produces such intense misery and depression as to indicate actual danger. There are positive manifestations which it is difficult to explain solely by the lack of the narcotic, so that something more than the mere staying of the craving appears to be necessary. These after-effects have been attributed variously to the presence of remaining derivatives of morphin which are assumed to be especially toxic.

Perhaps a step toward a final explanation of the depressive symptoms of the withdrawal stage after chronic morphinism is to be found in the recent work of Adriano Valenti[3] at the institute for experimental pharmacology in the University of Pavia. When morphin administration to dogs is stopped after a period of developing immunity, the animals show marked circulatory disturbances—increased frequency of the pulse, severe arhythmias, and arterial hypotension—which promptly disappear if morphin is again administered until the so-called morphin pulse manifests itself. More significant is the fact that when the serum of dogs habituated to large doses of morphin and then suddenly deprived of it is injected into normal animals of the same species, the foregoing syndrome is promptly produced. This is not due to a toxic influence of the serum as such; for the ill effects are not seen when the serum of unmorphinized dogs is introduced. The severity of the symptoms stands in direct relation to the size of the morphin intake to which the donor of the serum has previously been accustomed. Such observations widen the field and open new avenues of approach to the cause of the withdrawal symptoms. Obviously the lack of morphin is not the sole determining factor.

2. Rübsamen: Arch. f. exper. Path. u. Pharmakol., 1908, lix, 227.
3. Valenti, A.: Experimentelle Untersuchungen über den chronischen Morphinismus; Kreislaufstörungen hervorgerufen durch das Serum morphinistischer Tiere in der Abstinenzperiode, Erste Mitteilung, Arch. f. exper. Path. u. Pharmakol., 1914, lxxv, 437.

THE SOURCE IN THE FLUIDS IN SYPHILIS OF THE SUBSTANCES WHICH GIVE THE WASSERMANN REACTION

The source and the nature of the substances in the blood and other fluids of syphilitics on which the Wassermann reaction depends are not determined. At first they were regarded as true antibodies, but when it became known that specific antigen (extract of congenitally luetic liver) is not essential in order to obtain the reaction, and that the *Spirochaeta pallida* cannot be used successfully as antigen in the reaction, there no longer was any good reason for regarding the reacting substances in syphilitic fluids as of necessity being antibodies.

To obtain some clue as to the source of these substances, Wassermann and Lange[1] have made some very interesting experiments with the cerebrospinal fluid of syphilitics. They selected this fluid for their work because it is much less complex in its composition than the blood-serum and consequently less liable to undergo physicochemical changes that may give rise to misleading results. Thus the action of cerebrospinal fluid which gives the Wassermann reaction remains constant for a much longer time than in the case of serum. Wassermann and Lange find by accurate quantitative determinations that one source at least of the reacting substances is the lymphocytes in the fluid. It will be recalled that when the cerebrospinal fluid gives the Wassermann reaction it invariably contains an increased number of these cells, and it was found that autolysis of the lymphocytes in positive cerebrospinal fluid from syphilitics in most cases would result in an increase, sometimes very marked, in the power of the fluid to fix complement in the presence of extracts of syphilitic liver. This increase could not be obtained by autolysis of the cells in other cellular cerebrospinal fluids (those from non-syphilitic meningitis, alcoholic dementia) than those from syphilitics; hence it would seem that the lymphocyte, which is a prominent element in all syphilitic lesions, constitutes a laboratory for the manufacture of the substances necessary for the Wassermann reaction.

Whether these substances are antibodies still remains an open question concerning which Wassermann and Lange indicate that they may have something to say before long.

1. Wassermann, A. von, and Lange, C.: Zur Frage des Entstehens der Reaktionsprodukte bei der Serodiagnostik auf Lues, Berl. klin. Wchnschr., March 16, 1914, p. 527.

Current Comment

PROSPECTIVE MEDICAL STUDENTS AND LOW-GRADE MEDICAL COLLEGES

One of the tables published this week[1] (Table D) shows the states in which the diplomas from certain colleges are not given unqualified recognition. The table indicates that in from fourteen to thirty-two states the diplomas issued by thirty medical schools are not recognized, and that in these states the graduates of these thirty schools are not admitted to the examinations for licenses to practice medicine. It is highly important that this information should receive wide publicity, particularly in the interests of prospective medical students. Before selecting a medical school the student should know whether the training furnished and the diploma given by that school will qualify him for examination and for a license to practice medicine in any state he may choose. This information, that is, the fact that recognition has been withdrawn or withheld from certain medical colleges, is not always given publicity by state boards and, of course, is not published in the announcements of the colleges affected. Some students, therefore, have not been aware of the conditions until they had matriculated, or even until the time they had applied for a license to practice. Hundreds of students, in fact, have enrolled in low-grade medical colleges, have spent large sums of money, and have devoted three or four years to study, or have graduated before they learned these facts: not only that they have not received a training in modern medicine, but also in in many instances have received diplomas which in a large number of states are worthless. This is positively wrong and places a life-long handicap on these students. The important information regarding the non-recognition of low-grade medical colleges by state boards should be in the hands of every prospective medical student when he chooses his college. This knowledge will enable him to avoid the serious mistake of making a bad start on his life's work. The intelligent student, thus informed, would certainly not waste his time and money in a low-grade institution when in the same time and with perhaps even less money he could obtain a training in a thoroughly well-conducted medical school which would not only better equip him for his profession, but would also enable him to render better service to the people who will depend on him for medical attention or hygienic instruction.

THE PUBLIC AND LOW-GRADE MEDICAL COLLEGES

The information published in Table D is especially of importance to the public: it indicates the states that are not adequately protected against untrained doctors. The table shows that the boards of thirty-one states are making use of the legal power conferred on them to discriminate between medical colleges and to refuse recognition to those which are of low standard or are not properly equipped to furnish their students a satisfactory training in modern medicine. Of the thirty-one state boards, seven[1] will not license the graduate of any medical college unless he had completed at least two years of work in an approved liberal arts college before taking up the study of medicine. There remain eighteen states in some of which the boards do not have legal authority to pass on the character or standing of the colleges whose graduates may be admitted to examination. In other states the boards are apparently given ample powers, but, so far as our information shows, are not using those powers. It is important to note, that since the graduates of these low-grade medical colleges cannot secure licenses in thirty-one states they will flock to those in which they are still eligible. These eighteen states, therefore, are certain to be the dumping-ground for the output of these inferior colleges just so long as the practice acts permit, or so long as the state licensing boards do not take action against them. The people have the right to expect that the state — on which the national constitution places the responsibility — will grant them proper legislation, and that the licensing board — the only legal body having these matters in charge — will take such action as is necessary to protect them against the ill-trained product of low-grade medical colleges.

1. Page 1650.

STREPTOTRICHAL ORGANISMS IN THE SPLEEN IN CERTAIN CASES OF SPLENOMEGALY

Certain cases of splenomegaly, especially those which Osler classifies under the term of "splenic anemia," have many features suggestive of parasitic infection. The semblance to kala-azar and the beneficial effects following splenectomy and the administration of such remedies as salvarsan have frequently been noted, but thus far no specific etiologic factor has been determined. In an exhaustive study of the spleens from six patients A. G. Gibbons[2] found evidences of a streptothrix invasion in such relation to the tissues as to suggest this as the cause of the enlargement and fibrosis. These cases fall into two groups, four in the first group and two in the second, suggesting that there might be two different varieties. In a typical case of Banti's disease representing the first group in which special attempts were made to find parasites, the spleen was greatly enlarged and its capsule irregularly thickened. Small recent infarcts were present. Throughout the spleen were areas with branches of yellowish but not calcified material. After staining by Wheal and Chown's method, which, briefly, is a double stain, first by hematoxylin, then by carbolfuchsin, the decolorization being effected by equal parts of alcohol and saturated watery picric acid, black masses appeared in the trabeculae close to the veins, corresponding to the yellow areas of the fresh specimen. Under high power these masses consisted of numerous threads, and individual fibers averaging

1. These states are Colorado, Iowa, Indiana, Kentucky, Minnesota, North Dakota and South Dakota.

2. Gibbons, A. G.: On the Infective Nature of Certain Cases of Splenomegaly and Banti's Disease, Quart. Jour. Med., January, 1914, p. 153.

0.25 micron in thickness were seen only at the edges of the masses. The threads appeared segmented, in some places assuming a bacillary form with rounded ends; in other places where the threads were thicker and had undergone hyaline changes they were granular. A noticeable feature was the constancy with which the black masses were associated with the vessels. In some cases the walls were invaded and a beginning thrombosis was present, but the masses never penetrated into the lumen. The veins not affected were fibrous, suggesting a healed focus of previous invasion. In the second group of cases, stained sections showed a brilliant-red fine mycelium-like network occurring in round or oval masses. These masses formed a network of branches and threads varying in thickness and presenting different pictures, some ending in bulbous club-shaped extremities, others, separated from the network, appearing as cocci and short bacilli. By various stains the possibility that some tissue structures had simulated the parasites was eliminated. The masses were Gram-negative and were not acid-fast. Cultures were made on agar and blood-agar from the splenic pulp in only one case but without any results, the other spleens having been preserved some time before they were examined. These observations are hopeful as indicating progress in our knowledge of the conditions associated with splenomegaly; further evidence, however, must be obtained before definite conclusions can be drawn.

VARIATIONS IN THE PATHOGENIC AND OTHER CHARACTERISTICS OF SPIROCHAETA PALLIDA

Knowledge of the morphology and pathogenic characteristics of *Spirochaeta pallida* has reached the stage at which observers are attempting to classify distinct strains, the differentiation of which depends on definite variations in form, pathogenic power, virulence, etc. Noguchi[1] describes three types of the organism: the thick, thin and medium forms. Nichols[2] reviews the observations of others and contributes a study of a type of organism frequently found in syphilis of the central nervous system. The strain studied was isolated from the cerebrospinal fluid of a patient with nervous syphilis, and conformed to Noguchi's thick type in form. It produced in the testicles of rabbits a distinct lesion with raised indurated margins and necrotic centers, and localized constantly on the scrotal side of the tunica vaginalis. The incubation period averaged eighteen days, while that of the corresponding type of Noguchi averaged five weeks. What Nichols considers the most striking differential feature in this strain is its tendency to generalize, with lesions of the skin, eye and opposite testicle secondary to the inoculation lesion in the one testicle. These observations lead the author to conclude that he is dealing with a peculiar strain whose chief characteristic is its "invasive power" or what is described by others as high virulence and selective preference for certain tissues. He cites *Spirochaeta pertenuis* as an example of an organism of low invasive power. This organism produces yaws, which is a non-venereal, non-hereditary skin disease, and is not known to invade other tissues. For this reason Nichols suggests a classification with the *S. pertenuis* at one extreme, and the highly invasive strain isolated by him at the opposite extreme of the series, other strains occupying intermediate positions according to their characteristics. We have recently commented[3] on variations in the cultural, morphologic and pathogenic properties of certain bacteria, as observed by different workers, and it would seem that the same biologic principles there suggested might apply to organisms of the syphilis group, namely, that organisms of a given species may vary in their characteristics according to their environment either *in vitro* or *in vivo*, and with this variation may exercise a selective preference for different tissues and manifest varying grades of pathogenic power.

1. Noguchi: Jour. Exper. Med., 1912, xv, 201.
2. Nichols, H. J.: A Strain of Spirochaeta Pallida Isolated from the Nervous System, Jour. Exper. Med., April 1, 1914, p. 362.

EFFECT OF THE VANDERBILT DECISION ON MEDICAL EDUCATION IN THE SOUTH

The Supreme Court has recently decided that the board of trustees of Vanderbilt University, and not the General Conference of the Methodist Church, has the authority to select those who are to fill vacancies on that board. As a result of this decision the medical department of Vanderbilt University has secured the gift of one million dollars offered about a year ago[4] by Mr. Carnegie, and this, in turn, permits a continuation of the remarkable development already well begun in that school whereby it will continue to hold its place among the best medical schools in this country. Vanderbilt University Medical Department has had a long and difficult fight to uphold fair standards of preliminary and medical education against perhaps more numerous and embarrassing handicaps than have confronted any other medical school, and for that reason its recent good fortune is all the more gratifying. Even though it is located in the state which at present has the weakest legal requirements regulating the practice of medicine, it is now in position not only to maintain high standards in medical education in that state, but also, in the administration of its entrance standards, to exert a splendid influence in general education throughout the entire South.

3. Transmutations in Bacterial Species, editorial, THE JOURNAL A. M. A., March 28, 1914, p. 1021.
4. A Million Dollars for Medical Education, Current Comment, THE JOURNAL A. M. A., June 7, 1913, p. 1801.

Prevention of Drunkenness.—As long as intoxicating liquors or other intoxicating drugs are accessible to persons who are mentally defective, to persons of weak will, or to persons of normal mentality who suffer marked physical discomfort or pain because of overwork, undernourishment, unemployment, illness, or domestic and business worries, there is likelihood that any use of alcohol will lead to its abuse. In so far, therefore, as evil heredity, bad housing conditions, long hours of labor, poverty and other predisposing causes can be reduced gradually through preventive legislation, the sources of inebriety of the pathologic type will be correspondingly diminished.—Report of Commission to Investigate Drunkenness in Massachusetts.

Medical News

ARIZONA

Personal.—Dr. Guillermo R. Servin, Tucson, has been appointed consul of the Republic of Mexico at Mexicali, Cal.

State Health Officers Elect.—At the third annual meeting of the Arizona Association of State and County Health Officers held in Tucson, April 24. Dr. George D. Troutman, Tucson, was elected president, Dr. Henry A. Hughes, Phoenix, vice-president, and Dr. Robert N. Looney, Prescott, secretary.

CALIFORNIA

Austrian Surgeon at Riverside.—At the annual meeting of the Southern California Medical Society, held at Riverside, May 7 and 8, Dr. Egon Renzi, Vienna, Austria, delivered an address on "Extirpation of the Spleen for Anemia."

The Foresters Sanatorium.—Among the sanatoriums established in the West by various benevolent and secret orders for the care of their members afflicted with tuberculosis, is that of the Foresters recently erected in Lopez Canyon near San Fernando, about 25 miles from Los Angeles. Dr. Clarence B. Dickson, Los Angeles, chief ranger of the order in California, has donated his services as physician for the first two years. The sanatorium has quarters for about fifty patients, and is arranged on the cottage plan, with separate living quarters for nurses, with power plant, dairy, etc.

CONNECTICUT

New Officers.—Litchfield County Medical Association at Winsted, April 28: president, Dr. Elias Pratt, Torrington; secretary, Dr. C. H. Turkington, Litchfield.

Board of Health Appointments.—The following roster of the New Britain Board of Health is announced: Drs. Arvid Anderson, George H. Bodley and Henry T. Bray; Messrs. M. W. Davenport, Herbert S. Tallard and Timothy E. Burns. Dr. Thomas E. Reeks has been appointed health officer of the city.

State Epileptic Colony Opened.—The Connecticut Colony for Epileptics at Mansfield opened for the reception of patients May 15. The colony is located on a tract of land 500 acres in extent on the summit of a slope overlooking the Willimantic River, and will have accommodation for eighty patients and the necessary attendants and workmen. Dr. Donald L. Ross has been in charge of the construction, and will be superintendent of the institution. Dr. Max Mailhouse, New Haven, is president, and Dr. John H. Mountain, Middletown, vice-president of the board of trustees of the institution.

ILLINOIS

New Clinical Laboratory.—The Illinois Valley Clinical Laboratory has been established at Ottawa under the supervision of Dr. Roswell T. Pettit, with J. B. Gookin, formerly of Chicago, as chemist and bacteriologist.

Consulting Staff for State Hospital.—Superintendent H. J. Gahagan of the Elgin State Hospital has appointed the following complementary medical staff: eye, ear, nose and throat, Dr. John R. Tobin; gynecology, Dr. Frederick C. Schurmeier; internal medicine, Dr. John F. Bell; dermatology, Dr. Edward H. Abbott, and pathology and bacteriology, Dr. Samuel L. Gabby.

Personal.—Dr. Oscar B. Edmundson, Clinton, has purchased an interest in the Sulphur Springs Sanitarium, Peoria. ——Dr. James A. Rutledge, Woodmen, Colo., formerly of Elgin, has been elected state consul for the Colorado Woodmen of America.——Dr. A. M. Shaw has been appointed health commissioner of Clearing, and Dr. Orlando F. Scott, health commissioner of the villages of Summit, Argo, Justice and Gary.

Expense of State Charitable Institutions.—According to the statement of Frank D. Whipp, fiscal supervisor, State Board of Administration, the total expense of caring for the 20,000 inmates of the various state institutions for the year ended June 30, 1913, was $4,445,815.93. Of this amount $3,395,012.40 was for ordinary operating expenses, and $1,050,803.53 was for the upkeep of buildings and plants, the erection of new buildings and for permanent improvements. The largest item was for salaries, $1,492,853.75, which includes the wages of all employees. For medical supplies the sum expended was $46,041.11. After deducting amounts paid to the state by relatives of inmates for support, sale of farm products and other income not from the state treasury, the average net per capita cost of maintenance of the inmates of all classes of institutions was $158.37. The average net per capita cost of maintaining the insane was $142.24; feeble-minded, $156.09; deaf, $314.15; blind, $308.09; industrial home for the blind, $303.56; Soldiers' Home, $157.87; Soldiers' Widows' Home, $373.32; Soldiers' Orphans' Home, $261.56; Eye and Ear Infirmary, $273.77; school for girls, $199.30, and for inmates of the boys' school, $258.05.

Chicago

Personal.—Dr. and Mrs. Arthur W. Stillians sailed for Europe, April 25.——Dr. Otto L. Schmidt was reelected president of the Illinois State Historical Society at its meeting in Springfield, May 8.——Dr. Julia D. Merrill died May 17. Further notice will appear next week.

Infant Welfare Fund.—Great progress is being made in the collection of funds by the organizations interested in the infant welfare movement. One forenoon's work brought $4,513.70 to the association. Mr. Julius Rosenwald has promised to add 25 per cent. of the total sum collected. The campaign will end May 23d, when a complete report will be made.

Pathological Society Elects.—At its annual meeting, May 11, the Chicago Pathological Society elected the following officers: president, Dr. Ernest E. Irons; vice-president, Dr. L. E. Day; secretary, George H. Weaver; treasurer, Alexander A. Goldsmith; censors, Drs. Evarts A. Graham, Walter W. Hamburger and Frederick R. Zeit; and publication committee, Drs. Ludvig Hektoen, H. Gideon Wells and Frederick R. Zeit.

Clean-Up Week.—The Chicago *Health Bulletin* in commenting on the annual clean-up week, through which Chicago has just passed, says that the good feature about it is that it inculcates not only the clean-up spirit, but the keep-clean spirit, and this is the spirit that counts. In this connection it is suggested that as one means of keeping the back yard in good condition, there should be enough gardens in Chicago to supply thousands of tables with fresh vegetables.

Nurses' Training School Renews Contract.—The county board has refused to pay for $8,400 worth of nursing service supplied this year to the sick and injured in the county hospital. The service was supplied by the Illinois Training school. The board has renewed its contract with the school. A plan will be devised for financing the nursing until the county commissioners decide to pay and an appeal to the public for subscriptions is probable. The contract awarded provides the school shall have $45.85 a nurse actually employed.

Deaths from Accident During 1913.—Falls were the source of the greatest number of deaths from accident in Chicago last year, according to figures compiled by the Health Department. The total number of deaths from accident was 1,925. The chief causes were as follows: falls, 333; burns, exclusive of those caused by blazes in buildings, 291; railway accidents (steam), 271, street, 157; illuminating gas, 133; drowning, 122; automobiles, 121; poisoning, 42; electricity, lightning excepted, 24; due to machinery, 62. Of the 216 homicides reported during the year 135 were caused by firearms and 27 by stabbing or cutting. There also were 497 cases of suicide investigated by the coroner's office.

Good Housing Organization Formed.—Incorporation papers were taken out May 19 for the Chicago Housing Association. The first meeting of the new association will be held May 21, when a dinner will be given for Robert W. de Forest of the Russell Sage Foundation, president of the Housing Association of the United States.

The speakers will be Mr. de Forest, Mrs. Emmons Blaine, Dr. Charles R. Henderson, Dr. W. A. Evans, Miss Jane Addams, Miss Mary McDowell and others.

The association was formed of the housing committees working toward better housing conditions in Chicago of all organizations. The object was to get one organization with a concentrated effort, eliminating all duplication. The Chicago Association of Commerce, the City Club, the Woman's City Club, the Chicago Woman's Club and other civic organizations are represented in the board of directors of the association.

Clean Water Bill Offered for Protection of Chicago.—It is likely that pollution of the water-supply of Chicago and other lake cities by the sewage discharged from vessels will be prohibited in the near future. A bill, approved by the United States Public Health Service, was introduced in the House of Representatives, May 19, by Representative Mann of Illinois.

The bill provides: That no common carrier operating vessels, craft, or other vehicles or structures for the purpose of navigation shall discharge or cause to be discharged sewage or any other noxious material into the waters of the great lakes so as to pollute water-supplies of cities or towns or of other vessels plying on the great lakes; that no common carrier operating on the great lakes shall provide on steam vessels for the use of their crews and passengers water-supplies containing organisms or materials likely to cause disease of man.

For violation of the law an offender may be fined not more than $500 or imprisoned for not more than two years, or given both penalties.

IOWA

Personal.—Dr. George H. Stanger, Boone, who has been seriously ill, is improving and has resumed practice.——Dr. Cora Williams Choate has been elected president of the library board of Marshalltown.

New Officers.—Tama County Medical Society at Toledo, May 1: president, Dr. Albert A. Crabbe, Traer; secretary-treasurer, Dr. Frederick W. Gessner, Dysart.——Clayton County Medical Society at McGregor, April 29: president, Dr. Charles W. Duffin, Guttenberg; secretary-treasurer, Dr. William H. Thomas, McGregor.——Crawford County Medical Society at Denison, April 20: vice-president, Dr. William A. Garner, Kiron.——Harrison County Medical Association at Logan, May 7: president, Dr. John L. Tamisiea, Missouri Valley; secretary, Dr. H. Hansen, Logan.——Fremont County Medical Society, April 30, at Sidney: president, Dr. Theodore C. Harris, Tabor; secretary-treasurer, Dr. Ambrose E. Wanamaker, Hamburg.

KANSAS

New Officers.—Seventh District Medical Association at Hutchinson, April 24: president, Dr. William F. Fee, Meade; secretary-treasurer, Dr. William F. Schoor, Hutchinson.

Joint Meeting of Societies.—The joint meeting of the McPerson and Salina Counties Medical Societies held at Lindsburg, April 22, was so successful that it was voted to hold joint meetings every two months in that city.

Personal.—Dr. John De M. Miller, Leavenworth, returned from Europe, May 3.——Fire at Richmond, April 29, destroyed the office of Dr. Delmar H. Smith.——Dr. Lewis A. Ryder, Topeka, has been reelected medical director of the Home Mutual Life Insurance Company.

State Society Meeting.—At the annual meeting of the Kansas Medical Society, held in Wichita, May 5-7, the following officers were elected: president, Dr. William F. Sawhill, Concordia; vice-presidents, Drs. Jacob F. Gsell, Wichita; John F. Hassig, Kansas City, and Jacob L. Everhardy, Leavenworth; secretary, Dr. Charles F. Huffman, Columbus (reelected), and treasurer, Dr. Lewis H. Munn, Topeka (reelected). The society adopted a resolution asking the governor to appoint a commission to prepare a bill to be brought before the next legislature, defining the practice of medicine, and the requirement for practicing "the art of treatment of disease." Kansas City was selected as the place of meeting for 1915.

MARYLAND

Medal to Dr. Remsen.—Dr. Ira Remsen, formerly president of Johns Hopkins University and chairman of the Remsen Referee Board, was given a banquet by the Chicago section of the American Chemical Society, May 15, at which he was presented with the Willard Gibbs medal. This is the fourth award of the medal, and the third time it has been awarded to an American chemist. The presentation address was by Professor Noyes of the University of Illinois, and Dr. Remsen, in his response, spoke on "The Development of Chemical Research in America."

Physicians' Jubilee.—The Carroll County Medical Society gave a dinner on May 13 in honor of four of its members who have been in active practice for fifty years—Drs. George H. Brown, New Windsor; James H. Billingslea, Westminster; James Watt, Union Bridge, and John F. B. Weaver, Manchester. The first three of these physicians are graduates of the Maryland University, class of 1864. Dr. Daniel E. Stone of Mt. Pleasant, Frederick County, of the same class, was also present. Dr. Daniel B. Sprecher, Sykesville, president of the society, presided and acted as toastmaster.

Convention of Societies for Mental Hygiene.—The first convention of the societies for mental hygiene to be held under the auspices of the National Committee for Mental Hygiene will take place in Baltimore, May 25. The opening address will be delivered by Dr. Lewellys F. Barker, President of the National Committee for Mental Hygiene. Miss Julia Lathrop, Chief of the Children's Bureau, will speak on "What the Mental Hygiene Societies Ought to Do for Children." Hon. George P. McLean, U. S. Senator from Connecticut, will address the congress on "The Conservation of Mental Health—a National Problem," and Dr. William H. Welch, Vice-President of the National Committee, will speak on "Some Opportunities for the National Committee for Mental Hygiene."

Personal.—After serving as surgeon of Troop "A" Maryland National Guard, since its organization sixteen years ago, Dr. Charles G. Hill, Baltimore, has been placed on the retired list.——Dr. John H. Drach of Butler, Baltimore County, has been appointed health officer of the eighth district of Baltimore County to fill the vacancy caused by the resignation of Dr. William C. Ensor of Cockeysville.——Dr. Nathan R. Gorter, Commissioner of Health, has appointed Dr. Wilbur P. Stubbs, who has been examiner of throats for the department for a number of years, medical examiner of schools, to fill the vacancy caused by the death of Dr. Richard A. Urquhart.——Dr. Winford H. Smith, superintendent of Johns Hopkins Hospital, will return next week from California, where for the last two months he has been supervising the planning of the million dollar hospital for the University of California.

For Accurate Medical News.—At a meeting of the Baltimore City Medical Society held May 15, announcement was made of an agreement between the members of the publicity committee of the society and the press of the city relative to the publication of medical news. The agreement provides that in the future the representatives of the medical societies of the city cooperate with the representatives of the newspapers in communicating medical news accurately. The committee urges that wherever possible physicians give reliable information on important discoveries, the condition of patients of prominence and on other medical subjects in which the public is interested or which will tend to the public welfare. The names of no medical men are to be used by the newspaper unless written permission is given by the men whose names are used in the news items. Nothing is to be done that will be prejudicial to the interests of the patient or to other parties concerned in the items. The newspaper men agree to seek their information from the proper sources, that accurate information may be obtained. The agreement was adopted by members of the societies and committees were appointed on the various subjects of medical interest on which the newspapers may seek information.

MASSACHUSETTS

Anti-Vaccine Bill Defeated.—The bill passed by the Senate for eliminating the present requirement that children must be vaccinated before they are admitted to the public schools has been defeated by a vote of 132 to 53.

Personal.—Drs. James J. Minot and John F. O'Brien have been elected members of the building committee of the Boston Consumptives Hospital.——The action of the Boston Board of Health in removing Dr. William H. Davis, its vital statistician, has been rescinded.

New Officers.—Essex North District Medical Society at Lawrence, May 6: president, Dr. Israel J. Clarke, Haverhill; secretary-treasurer, Dr. J. Forrest Burnham, Lawrence.——Berkshire District Medical Society at Pittsfield, April 30: president, Dr. Franklin C. Downing, Lanesboro; secretary, Dr. Oliver L. Bartlett, Pittsfield.

Governor Approves State Health Office.—A special message was sent to the legislature by Governor Walsh, May 4, together with a bill which provides for the reorganization of the State Board of Health with one paid official, to be state health commissioner, and six unpaid assistants, including two engineers, two physicians, one sanitary expert and one lawyer.

MICHIGAN

Clinic for Babies and Young Children.—A free clinic for the treatment of babies and young children was opened at the Salvation Army Citadel, Flint, May 2. The clinic is to be held Wednesdays and Saturdays, and deserving cases will be cared for free of charge.

Changes in State Board.—Dr. John L. Burkart has succeeded Dr. Robert L. Dixon as secretary of the State Board

of Health. Dr. Dixon has been appointed superintendent of the Michigan Epileptic Farm Colony, Wahjamego.——Dr. Marinus L. Holm is continued as bacteriologist of the State Health Department.

Personal.—Dr. Harry A. Wilson, Lansing, who has been ill at his home, has recovered and resumed practice.——Dr. Bret Nottingham, Lansing, is reported to be critically ill with cancer of the stomach at Harper Hospital, Detroit.——Dr. Edmund M. Pease, of the staff of the Michigan State Hospital, Kalamazoo, has accepted a similar position at the Massachusetts State Hospital, Boston.

State Medical Inspectors Appointed.—Dr. John L. Burkart, Lansing, secretary of the State Board of Health, announces the following list of medical inspectors for the State of Michigan, to conform to the recent congressional redistricting: First district, Dr. Guy L. Kiefer, Detroit; Second district, Dr. James F. Breakey, Ann Arbor; Third district, Drs. Alvin H. Rockwell, Kalamazoo, and Walter H. Sawyer, Hinsdale; Fourth district, Drs. Charles N. Sowers, Benton Harbor, and Dr. John McGuffin, Hastings; Fifth district, Dr. Thomas M. Koon, Grand Rapids; Sixth district, Dr. Henry S. Bartholomew, Lansing, and Dr. Don D. Knapp, Flint; Seventh district, Drs. William H. Smith, St. Clair, and Charles B. Morden, Bad Axe; Eighth district, Drs. Harold A. Hume, Owosso, and Fred A. Johnson, Greenville; Ninth district, Drs. George S. Williams, Muskegon, Julius M. Wilhelm, Traverse City, and George O. Switzer, Ludington; Tenth district, Drs. Edward Goodwin, Bay City, S. Elston Hooper, West Branch, and William T. Dodge, Big Rapids; Eleventh district, Drs. William H. Marshall, Boyne City, Clarence M. Williams, Alpena, and Earl V. McComb, Menominee; Twelfth district, Drs. Edward T. Abrams, Hancock, Henry E. Perry, Newberry, and Frederick M. Harkin, Marquette. The duties of these inspectors are to investigate, on advice from the state office, all outbreaks of communicable diseases, all matters pertaining to water-supply and sewage disposal, and to see that all local authorities attend to their duties in times of epidemic.

MINNESOTA

Personal.—Dr. George T. Baskett, assistant superintendent of the St. Peter State Hospital, was stabbed in the arm, May 8, by an insane patient who had improvized a dagger from heavy galvanized iron wire.——Dr. Leonard E. Claydon, Red Wing, has returned from abroad.

Medical Building Burns.—The two upper floors of the Medical Building, Minneapolis, including the offices of many physicians and dentists, were burned, May 5, with a loss estimated to be from $50,000 to $100,000. The fire is believed to have been of incendiary origin.

Iron Range Physicians to Organize.—At a meeting of the physicians of Mesaba Range held in Virginia, May 11, at the call of Dr. Charles B. Lenont, Virginia, Dr. John C. Farmer, McKinley, and others, it was agreed that an organization should be formed for the mutual benefit of physicians of that portion of Minnesota.

Railroad Water Supplies in Minnesota.—Following the promulgation by the Secretary of the Treasury of the regulation regarding water and ice furnished to passengers by common carriers in interstate traffic, the Minnesota State Board of Health undertook to examine the water supplies for passengers used by the railroads of that state, not only in interstate traffic, but in intrastate traffic as well. This examination was made by R. H. Mullon, H. A. Whittaker and B. M. Mohler of the Minnesota Board and a report made to the Surgeon General of the U. S. Public Health Service, whose aid and approval the Minnesota board had in prosecuting this work. It consisted of field and laboratory examinations and is summarized as follows: Over 50 per cent. (52.45 per cent.) of the supplies investigated could not be recommended in their present state as drinking water supplies. Of the 32 supplies on which recommendation was refused, 31 were pronounced unsafe by the field investigation and of these but 16 showed analytical evidence of pollution. In one instance only did the analytical results alone constitute the refusal for recommendation. A careful and adequate field investigation in addition to the analytical determinations is required before a satisfactory opinion should be ventured concerning the safety of a given water supply. The owners of practically all the condemned water supplies can convert these into safe supplies at a relatively small cost by following in detail the recommendations given each locality.

MISSOURI

Last Graduation from Ensworth.—On April 30, Ensworth Medical School, St. Joseph, graduated its last class and permanently closed its doors. This action is in accordance with the decision of a few years ago that the school would continue only until the class then enrolled had graduated. Nine students received degrees at the graduating exercises.

Personal.—Dr. Clarence B. Francisco, Kansas City, sailed for Europe, May 2.——Dr. Benjamin Y. Jaudon, Palmyra, has been appointed assistant medical director of the Missouri State Life Insurance Company, St. Louis, and will make his home in that city.——In a fire in the office of Dr. Arthur R. McComas, Sturgeon, April 15, his entire office equipment was destroyed.

New Officers.—Fourteenth District Medical Society at Marshall, April 23: president, Dr. Robert L. Evans, Boonville; secretary-treasurer, Dr. John R. Hall, Napton.——Southwestern Missouri Medical Society at Springfield, April 30 to May 1: president, Dr. Charles M. N. Rogers, Mansfield; secretary, Dr. Herbert S. Hill, Springfield, (reelected).——Fifth District Medical Association at Memphis, April 30: president, Dr. Byron B. Potter, Lancaster; secretary-treasurer, Dr. Edward E. Parish, Memphis.——Linton District Medical Society, May 5: president, Dr. Chambers B. Clapp; secretary, Dr. J. Curtis Lyter, both of Moberly.——Harrison County Medical Society at Bethany, May 1: president, Dr. Leslie R. Webb; secretary-treasurer, Dr. W. Worthington Vandivert, both of Bethany.

NEBRASKA

New Officers.—Dixon, Decatur, Cedar, Thurston and Wayne Counties Medical Society at Wakefield, April 27: president, Dr. Charles H. Maxwell, Dakota; secretary-treasurer, Dr. Buis Tender.

Personal.—Dr. A. J. Edstrom has succeeded Dr. C. B. Foltz as police surgeon of Omaha.——Dr. Elmer J. Updegraff, Omaha, who was operated on for disease of the stomach at the Methodist Hospital, May 2, is reported to be in a serious condition.——Dr. Charles F. Moon has been appointed house physician of the Douglas County Hospital, Omaha.

Impostor Faring Westward.—A physician of Lincoln warns physicians against a young man about 5 feet 4 inches tall, blond, blue eyes, who dresses neatly, speaks English fluently, and is aggressive, and who claims to be a medical student of the University of Heidelberg, but that through misfortune and the death of his father he has been obliged to discontinue his studies, and that he expects to enter a Chicago medical school this fall. He calls on professional men, and especially German physicians, telling hard-luck stories, and asking for assistance. He calls himself William Kahlkoff, but his right name is supposed to be L. Hofer. He has some knowledge of drugs, which he obtained by clerking in a German grocery. His name does not appear on the list of students of the University of Heidelberg. He has been heard from thus far in New York, Buffalo, Pittsburgh, Chicago, Milwaukee, Omaha, Kansas City and Lincoln.

NEW JERSEY

New Medical Institution.—A Philadelphia architect has prepared revised plans for a two-story brick municipal hospital for Millville, N. J., 32 x 100 feet, and to cost $20,000.

Contract for Sanatorium Awarded.—The contract for the construction of the new tuberculosis sanatorium pavilion for the Essex County Hospital at Cedar Grove has been awarded for $116,112. This is nearly $4,000 below the estimated cost.

Personal.—Dr. Arley I. Munson, Red Bank, has passed an examination for physician of a state institution, and will receive her appointment so that she may assume charge in the fall.——Dr. Samuel E. Weiner, Atlantic City, was shot at by a man said to be a paranoaic, April 27, but was not injured.

Alumni Meeting.—At the conclusion of the banquet July 1, which will close the annual meeting of the Medical Society of the State of New Jersey at Spring Lake, the New Jersey medical alumni of the University of Pennsylvania will hold their annual smoker. Dr. Alexander MacAlister is chairman, and Dr. Hyman I. Goldstein secretary of the committee on arrangements, both of Camden.

Campaign Against Mosquitoes.—Although Atlantic County can never be entirely free from the mosquito so long as conditions remain as they are in the Cape May County swamps, still with $26,000 to be spent in a campaign against the

mosquitoes, this county will be greatly improved. Chief Inspector Eaton, who was for four years in the Canal Zone, will have the services of fourteen inspectors, five of whom will be engaged in a campaign against the fresh-water mosquitoes.

NEW YORK

Vaccinate State Hospital Patients.—Pursuant to orders of the Lunacy Commission, patients at the Hudson River State Hospital, numbering more than 3,000, have been vaccinated by the asylum staff.

A New Dispensary.—Plans have been filed with the Building Department for a four-story dispensary building to be erected at the north-east corner of Gouverneur Slip and Front Street. This will be known as the Gouverneur Dispensary and will be maintained by the city. The estimated cost is $200,000.

Protests Against Bronx Hospital Fail.—The protests of the residents of Seton Falls Park against the construction of a hospital for the treatment of contagious diseases has failed to move the Board of Estimate, which was authorized by the Comptroller to buy a site of 32 acres in the park at a price not to exceed $32,000.

Memorial for Dr. Le Fevre.—Mrs. Helen H. Le Fevre, the widow of the late dean of the New York University and Bellevue Medical College, Dr. Egbert Le Fevre, has made a donation of $10,000, the income of which is to be applied toward the salary of the person who from time to time may accept the office of dean of the Medical College of the University. The trust is to be known as the Dr. Egbert Le Fevre Deanship Fund.

Centenary of Edward Mott Moore.—The Committee of One Hundred of Rochester, appointed to arrange a fitting celebration of the 100th anniversary of the birth of Dr. Edward Mott Moore, and to erect a monument to his memory, has arranged that the celebration shall be held on July 15. The park board has contributed $2,000 toward the expenses of the celebration, and the committee has adopted resolutions asking the city to erect a life-size statue of Dr. Moore, to be placed in Genesee Valley Park.

Civil Prosecutions by Health Department.—Heretofore violations of the Sanitary Code or of the rules and regulations of the Health Department have been prosecuted for criminal action in such violations, but now the department has determined to prosecute such cases as civil actions, since it is frequently difficult to establish criminal intent in such violations. Five such cases have already been terminated and in each instance a judgment for $50 and costs has been obtained. This procedure was inaugurated in connection with the work of the Bureau of Food Inspection.

Asks Aid for Defectives.—An attempt is being made by the State Charities Aid Association and the Association for Improving the Condition of the Poor to induce the legislature at its special session to appropriate $500,000 for additional beds at Letchworth Village, Craig Colony, and Rome. Each legislator has been sent a list of 1,000 feeble-minded persons who experts believe should be cared for by an institution, and the Clearing House for Defectives in New York City has on file 3,000 additional names of persons who need institutional care. If no appropriation is made, it is probable that a bond issue will be authorized.

Friedmann's Tuberculosis Treatment in City Hospitals.—Requests for information in regard to the results of the Friedmann tuberculosis treatment have led the Department of Health to ascertain the recent status of seventy-seven cases treated at the time of Dr. Friedmann's visit to this city. Of the seventy-seven patients treated, nineteen could not be found, while eleven were reported to have moved out of town permanently. The department was therefore able to obtain reports on but forty-seven of the cases in question. These reports show that there are at present five of these patients at home; twenty-two are in hospitals or sanatoria (indicating failure to cure); seven are attending clinics (showing the need of further treatment); one is attended by a private physician, and twelve have died.

Bad Food at State Hospitals.—Inspectors of the Department of Efficiency and Economy together with experts from the Bureau of Animal Industry of the United States Department of Agriculture have completed an inspection of the fourteen state hospitals and made their report to the state hospital commission. This report describes unbelievable conditions in nearly all of the state institutions. According to the report the Hudson River State Hospital at Poughkeepsie has been using the milk from a herd of tuberculous cattle for the past eighteen months. Large quantities of meat and eggs were ordered destroyed at several of the other hospitals. It is stated that at the Utica State Hospital the sanitary condition of the bakery was intolerable and a menace to both patients and employes. In the Willard State Hospital 3,200 pounds of pork was found spoiling for lack of care. It is stated further that the state is losing from $30,000 to $35,000 annually because of the loose construction of the law regarding the maintenance of the families of the employees.

Health Matters and the Chamber of Commerce.—The Rochester Chamber of Commerce, in addition to the attention given to the welfare of Rochester in commercial affairs, has a Public Health Committee to look after health and sanitary matters, which is one of the most valuable divisions of the body. The *Official Bulletin* for May 15 says that the Chamber of Commerce has appointed a physician to examine all its employees with reference to their general health and the presence of transmissible diseases which might be spread among themselves or those with whom they come in contact. It also approves and encourages the plan now adopted by many employers of having their employees examined and followed up by regular inspections. Among the other health and welfare subjects mentioned in the *Bulletin* are the matter of smoke-prevention, clean-up week, the prevention of street accidents and legislation concerning the restriction of the employment of women and children in mercantile establishments. The Chamber in this way proves a valuable ally to the health department in improving health conditions in the city.

New York City

Typhoid and Vacationists.—The weekly *Bulletin of the New York Board of Health* warns persons who take vacations this summer of the danger of contracting typhoid fever, and urges them to be vaccinated against the disease. Antityphoid vaccine can be obtained without charge from the Department of Health. The product is prepared after the formula of the vaccine used in the United States Army.

Facilitating the Distribution of Health Information.—The health department has arranged with two of the large industrial insurance companies of the cities to distribute through their agents and collectors public health bulletins, circulars and health literature of all sorts. Three thousand agents visit the homes of 750,000 families weekly. A new brief folder giving information about typhoid fever and its prevention, printed in a number of different languages, is being prepared for distribution by this means.

Trade School for Cardiac Convalescents.—A report has just been made on an experiment undertaken last year in the care of cardiac convalescents. A home was opened at Sharon, Conn, where patients from the wards and dispensaries of New York hospitals receive care and treatment for several months and at the same time are taught a trade in which they can engage without danger to their crippled hearts. Provision is also being made to provide employment for the patients when their term of treatment in the home is completed. Among the directors of the organization are Drs. John Winters Brannan, Frederick Brush, Hubert V. Guile, John H. Huddleston and Warren Coleman.

NORTH CAROLINA

Tribute to McBrayer.—The Asheville Board of Health pays Dr. L. B. McBrayer, who recently resigned to accept the medical directorship of the State Sanatorium for Tuberculosis, at Montrose, N. C., a fine tribute by devoting the whole of the May issue of its monthly public health bulletin to an account of the banquet tendered Dr. McBrayer last month when leaving Asheville for the taking up of his new duties. The issue contains his portrait and a detailed account of the speeches at the banquet with Dr. McBrayer's response.

Meetings to Come.—The Medical Society of the State of North Carolina meets for its sixty-first annual session, in Raleigh, June 16, under the presidency of Dr. J. M. Parrott, Kinston, N. C.——The North Carolina State Health Officers' Association will hold its annual meeting June 15, 1914.——The annual joint session of the State Medical Society and the State Board of Health will be held June 17. The session of the Board of Examiners will probably conclude on the second day of the State Society's.——This grouping of meetings of state organizations should be most helpful and interesting to all. It also tends to conserve and further develop the cause of medical solidarity and further unite the various medical bodies of the state. This holding of the various

medical meetings at the same time and place is rather a peculiar North Carolina custom originating in 1859, the year the State Board of Medical Examiners held its first meeting, and as the needs of the profession and people have developed the other allied societies and boards, they naturally follow the established precedent of meeting at the same time and place with the parent organization, the State Medical Society. Besides conserving and holding most closely together the different professional bodies, the custom is a great time-saver to the busy physician in that he is enabled to take part in the various meetings, thus keeping in close touch with all the organized professional interests of his state, with the minimum expenditure of time and expense.

OHIO

Dinner to Women Physicians.—The Women's Medical Club of Columbus gave a dinner, May 3, in honor of women physicians attending the Ohio State Medical Association.

Personal.—Dr. Johann F. Dolina has succeeded Dr. Henry D. Rienhart as laryngologist and rhinologist on the medical staff of the Miami Valley Hospital, Dayton.——Dr. George Goodhue, Dayton, is reported to be seriously ill at his home. ——Dr. Esmond A. Childs, Geneva, who was operated on for appendicitis at Cleveland recently, has returned home convalescent.——Dr. John H. Axline, Lancaster, suffered a slight cerebral hemorrhage at the Zanesville Hospital, May 6.——Dr. William M. Calhoun has resigned as president of the training school of the East Liverpool City Hospital.

PENNSYLVANIA

Gift to Abington Hospital.—On May 15, the new Abington Memorial Hospital was open to public inspection, and the Board of Trustees announced a gift of $250,000 to the endowment fund, by George W. Elkins of Elkins Park. The gift is in memory of his wife, Stella McIntire Elkins. Mr. Elkins had already given $100,000 in memory of his wife. The hospital will start a training school for nurses immediately. The new buildings, located at York and Woodland Roads, were used for hospital purposes May 18.

Philadelphia

Baby Saving Show.—The Baby Saving Show of the Child Federation in the City Hall Court Yard, was officially opened by Mayor Blankenburg, May 12. Exhibits of proper food, clothing, toys, bottles, tubs, towels and numerous things used for babies, were shown in small booths. The exhibit designed as a preventive, not a curative, measure will be open to the public every day, except Sunday, from 9 a. m. to 5 p. m., until October 1.

Personals.—The Elliott Cresson Gold Medal of the Franklin Institute was presented to Provost Edgar Fahs Smith of the University of Pennsylvania, May 20, in recognition of his work in the field of Electro Chemistry, and in view of his many contributions to the literature of chemical science. Dr. Harry F. Keller, head of the Department of Science, made the presentation address, and the medal was presented by Dr. Walton Clark, President of the Institute.——Ex-Surgeon General Charles F. Stokes, U. S. N., was a guest of honor of the West Branch of the Philadelphia County Medical Society, at its "social night," May 18.

City Milk to be Pasteurized.—Following a meeting of the Board of Health, May 11, Chief Vogelson, of the Bureau of Health, announced that the new regulations regarding the pasteurization of milk will go into effect July 1. Under these rules all milk from non-certified dairies must be pasteurized. A vigorous campaign against compulsory pasteurization of milk was planned by the members of the Independent Milk Dealers' Association, at a mass meeting held on the plaza of City Hall, May 15. This meeting was a direct protest against the recent order from the Board of Health. More than 2,000 persons were present and resolutions were adopted to the effect that the pasteurization of fresh milk was detrimental to the value of the product.

VIRGINIA

Donation to Hospital.—Rockingham Memorial Hospital, Harrisonburg, has been presented by Mr. R. G. Alexander of New York with an elevator, the installation of which cost $1,000.

Raises Milk Standard of Richmond.—Dr. E. C. Levy, health officer of Richmond, announces that the City Board of Health has passed an ordinance, effective September 1, which requires that all milk and cream in the Richmond markets shall be obtained from cows that have passed the tuberculin test.

Personal.—Dr. Julian F. Ward has been elected mayor of Winchester.——Dr. George Ben Johnston, Richmond, has been appointed a member of the Board of Visitors of the Medical College of Virginia, the commission to last for life. This appointment renders it necessary that Dr. Johnston resign from the faculty of the college.——Dr. Herbert Old, Norfolk, has been appointed assistant medical director of the Provident Life and Trust Company, Philadelphia, with headquarters at Philadelphia.

GENERAL

American Pediatric Society.—This society will hold its twenty-sixth annual meeting at Stockbridge, Mass., May 26-28. The preliminary program includes addresses on almost every phase of the diseases of children and their care.

Central Railway Surgeons Hold Meeting.—The annual meeting of the Central of Georgia Railway Surgeons' Association met in Savannah, May 5 and 6, and elected the following officers: president, Dr. Henry B. Disharoon, Roanoke, Ala.; vice-president, Dr. William C. Howell, Dothan, Ala.; and secretary-treasurer, Dr. Walter E. Saunders, Arlington, Ga.

Medical Jurisprudence Association Elects.—The second annual meeting of the American Association of Medical Jurisprudence was held in New York City, May 2. The following officers were elected: president, Charles A. Boston; vice-presidents, Oscar W. Ehrhorn and Dr. D. Percy Hickling, Washington, D. C.; secretary, Charles P. Blaney, and treasurer, John C. West.

Meeting of the American Medico-Psychological Association.—The seventieth annual meeting of the American Medico-Psychological Association will be held in Baltimore May 26 to 29, inclusive. A symposium on "Paresis" will be held May 26. On the second day the annual address will be delivered by Dr. Lewellys F. Barker on "The Relation of Internal Medicine to Psychiatry," and on the fourth day there will be a symposium on "Eugenics."

To Study Tropical Diseases.—The foundation stone of the new School of Tropical Medicine at Calcutta, for the site and laboratory of which the government of India has appropriated $195,000, was laid recently by the governor of Bengal. The institute will accept students from all over the world, and it is hoped that students of medical research institutions of the United States may be sent to the school for study. Communications regarding the school should be addressed to Lieut.-Col. Leonard Rogers, I. M. S., Medical School, Calcutta.

Bequests and Donations.—The following bequests and donations have recently been announced:

Kings Daughters' Hospital, Shelbyville, Ky., donations of $4,000 for an additional building.

Jewish Hospital, Philadelphia, a donation of $5,000 for a perpetual free bed, in memory of the family of Joseph and Amelia Nevil, by George Nevil.

Medical School of the University of Cincinnati, an endowment fund of $31,500, from the estate of Frances Gibson; $1,000 annually for the establishment of six medical school scolarships, a gift from Julius Fleischmann.

American Physicians' Association Meets.—At the closing session of the Association of American Physicians, held at Atlantic City, May 13, the following officers were elected: president, Dr. Samuel J. Meltzer of the Rockefeller Institute, New York; vice-president, Dr. Henry Sewall, Denver; secretary, Dr. George M. Kober, Washington, D. C.; recorder, Dr. Thomas McCrae, Philadelphia; treasurer, Dr. J. P. Crozer Griffith, Philadelphia, and representative on Executive Committee of the Congress of American Physicians and Surgeons, Dr. Theodore C. Janeway, Brooklyn.

American Dermatological Society.—At its annual session held in Chicago, May 14-16, the American Dermatological Society adopted resolutions to the effect that a memorial be presented to the President of the United States and Congress, setting forth the dangers of the leper at large and urging detention in a place under national control. A permanent committee on leprosy was appointed, consisting of Drs. Martin F. Engman, St. Louis, chairman; Charles J. White, Boston, and Dr. James McFarlane Winfield, Brooklyn. The following officers were elected: president: Dr. Sigmund Pollitzer, New York City; vice-president, Dr. Martin F. Engman, St. Louis; and secretary and treasurer, Dr. Oliver S. Ormsby, Chicago.

Appropriations for National Children's Bureau.—The Committee of the House of Representatives in acting on the appropriation of $164,000 asked for by Miss Julia C. Lathrop, head of the National Children's Bureau, reduced the amount to $25,000, but the House raised this to the original sum

asked. The Senate has now confirmed this and the Bureau will get the full appropriation. Concerning this the Chicago *Tribune* says:

If any expenditure is justified from the point of view of constructive statecraft it is an expenditure which conserves the sources of citizenship. Sound manhood and sound womanhood make a state, and these no state can have unless it protects the soundness of childhood in body and mind.

Hearing on the Palmer-Owen Bill.—Friday, May 23, the third public hearing was held on the Palmer-Owen bill, which forbids the shipment in interstate commerce of goods produced in establishments not conforming to the age requirements of the bill in the employment of child labor. Among the many organizations supporting the bill are the Child Labor Committee of Virginia, the Executive Council of the Massachusetts Board of Trade, and the Los Angeles Chamber of Commerce. According to the National Child Labor Committee, of 78,000,000 people who live in mining states, 41,000,000 have forbidden children under 16 to work in mines; 45,000,000 have placed on the statute books of their states an eight-hour day for children, 58,000,000 people have prohibited night work for children under 16.

Tropical and Parasitic Diseases Among Immigrants.—Surgeon-General Blue (*Pub. Health Rep.*, May 15) directs medical officers of the Public Health Service engaged in the medical examination of aliens to give especial attention to the detection of the following diseases:

Kala-azar. Reported in China, Egypt, Arabia, Tunis, Algiers, Greece, Malta, and generally in the region surrounding the Mediterranean Sea.

Schistosoma Haematobium. Blood fluke infection. Found in South Africa, Egypt and Cuba.

A group of infections found especially in China and Japan as follows: *Clonorchis.* Formerly *Opisthorchis sinensis,* also called Japanese liver fluke. It is stated to be as common in some parts of Japan as hookworm is in Africa. *Paragonimus Westermanii.* Japanese and Chinese lung fluke. The disease caused by this parasite is extremely chronic and is accompanied by more or less serious hemorrhage and is often mistaken for consumption. *Diplogonoporus Grandis.* Japanese tapeworm. Resembles Russian tapeworm. *Schistosoma Japonicum.* Blood flukes of China and Japan.

Guiteras Called to Tampico.—It has been announced that Dr. G. M. Guiteras of the Public Health Service has been called to Tampico, Mexico, with the consent of the constitutionalist forces, now in control of that place, to "clean up" the city. Tampico is believed to be a breeding ground for many tropical conditions, especially yellow fever, small-pox and malaria. Dr. Guiteras will investigate the sanitary situation fully and make recommendations to remedy the many evils he will no doubt discover. His absence from Vera Cruz will place in charge of health conditions there Dr. Von Ezdorf, the next officer in charge under the temporary United States control. This movement on the part of the constitutionalists is significant of the power for good which the United States possesses in its public health service, and shows again the recognition now being accorded to these workers by foreign nations.

Dr. Theobald Smith Becomes Director of New Institute.—Announcement has been made by the Rockefeller Institute for Medical Research that Dr. Theobald Smith, now professor of comparative pathology in the Harvard Medical School, has accepted the position of director of its new department of animal pathology. This department has but recently been established, and the fact that Mr. Rockefeller has added $1,000,000 to the endowment of the institute for the support of this department, and that Mr. James J. Hill has pledged $50,000 for its use in the study of hog cholera became known only a few weeks ago. The department is not yet organized or equipped, but it is expected to begin active work within a year. In the meantime, Professor Smith will continue his connection with Harvard University so long as may be necessary to complete work on which he is now engaged at its medical school. He has had a distinguished career as a pathologist and bacteriologist and is considered as one of the world's foremost bacteriologists.

Safety Campaign Lessens Personal Injury Cases.—During the last four years the leading industries of the country have paid a great deal of attention to the question of safety to the end that the number of personal injury cases might be lessened. Since the movement was started, the Chicago & Northwestern Railway has reduced the number of accidents nearly 30 per cent. During the four years 10,000 fewer persons were injured on this system than in the preceding four years. On the Great Lakes the Lake Carriers' Association has conducted a systematic campaign for the elimination of the avoidable accident by distinctly marking dangerous places and by appointing safety committees from among the crew on each ship. In addition, the association has begun a campaign on sanitation to promote the physical well-being of the men. The initial steps in the campaign have to do with the care and preparation of food supplies. Every dealer on the whole chain of lakes supplying meats, milk, groceries and ice to the boats has received a circular from the Welfare Plan Committee of the Lake Carriers' Association outlining certain simple rules to be observed in the care of foodstuffs. In addition, the sanitary committee of the Lake Carriers' Association has defined the areas on the Great Lakes from which drinking water may be drawn for the vessels.

CANADA

Typhoid Abated.—The outbreak of typhoid fever in the province of Quebec along the Richelieu River has abated. The water-supply of numerous towns is being treated with hypochlorite.

Adami Gold Medalist.—John George Adami, professor of pathology at McGill University, Montreal, has been awarded the Fothergill gold medal by the Medical Society of London, England, for 1914, for his work on pathology and its application to practical medicine and surgery.

Medical Act Amended.—The New Brunswick Medical Act has been amended. The matriculation fee has been advanced from $5 to $10; examination in medicine from $10 to $30; registration from $10 to $40. Registered physicians are now required to pay an annual fee of $1, or a single life payment of $20.

Vaccination at McGill.—The Corporation of McGill University at Montreal has adopted a regulation that all students entering the university shall be required to present a certificate or other satisfactory evidence of successful vaccination, or at once be vaccinated in a manner satisfactory to the medical examiner.

Tuberculosis Experts to Meet.—The fourteenth annual meeting of the Canadian Association for the Prevention of Tuberculosis, of which the governor-general is honorary president, will be held in Halifax, N. S., July 13 and 14. Dr. S. Adolphus Knopf, New York City, will deliver the oration on "The Modern Warfare Against Tuberculosis as a Disease of the Masses."

Personals.—Dr. Max O. Klotz, President of the Ontario College of Physicians and Surgeons, has sailed for Europe.——Dr. J. Price Brown, a well-known rhinologist and laryngologist of Toronto, has been forced to retire from active practice on account of glaucoma.——Dr. Charles F. Martin, Montreal, has returned from a trip round the world.——Dr. Francis R. Gow, Halifax, N. S., has been appointed chief medical officer and inspector for immigration at that port.

University News.—The annual instruction for the benefit of postgraduate students conducted by the medical faculty of McGill University, Montreal, will commence June 1.——Lectures in the medical department of McGill University ceased April 30. The examinations will be held May 4 and succeeding days. The graduating class this year numbers seventy-five.——Examiners at Toronto University will take part this year at the examinations of McGill University, while those from McGill will go to Toronto. This will be done this year only in anatomy and pathology, but in future years this is expected to be extended to embrace many subjects.

Hospital News.—The municipal grant to the Prince Rupert (B. C.) Hospital has been reduced from $10,000 to $7,000. The British Columbia government has made a grant of $100,000 to the Vancouver General Hospital; next year the amount will be $125,000.——A grant of $2,000 has been made by the provincial government of British Columbia for a new hospital at Masset.——The Medicine Hat General Hospital has received a municipal grant of $19,000. Of this amount, $5,000 will be devoted to current expenses and $14,000 for property purchase.——A sanatorium for the treatment of tuberculosis cases is to be built at once at Calgary. A year ago the sum of $30,000 was voted by the Calgary Council for the purpose.——The Brandon (Man.) Hospital is to expend $100,000 on a maternity home and extend the mission building and nurses' home.——In the province of Ontario there are eighty-nine public hospitals, fifty-seven private hospitals, thirty-seven refuges, eight sanatoria for consumptives, thirty-three orphanages, three homes for incurables and thirty-one county houses of refuge. During the year ended Sept. 30, 1913, 68,738 patients received treatment in the hospitals, and 4,058 deaths occurred. The total amount expended during the year on hospitals was $3,155,340, of which amount the Ontario government granted $232,276.

LONDON LETTER

London, May 8, 1914.

The Royal Commission on Venereal Diseases

The Society of Medical Officers of Health has called the attention of the commission to the lack of exact information regarding the present prevalence of syphilis and other venereal diseases either as causing illness or death; the misleading or incomplete character of certified causes of death, particularly of the remote causes in fatal diseases of the nervous or circulatory systems; the absence of any systematic provision for the recognition of the diseases in question, and the relation of syphilis to miscarriage, stillbirths and deaths among infants in the first year of life, especially the first four weeks.

Sir Victor Horsley insisted on the importance of education of the public in regard to venereal diseases and of children in sex matters. If the nature study part of elementary education were extended and every child taught the groundwork of hygiene, instruction in sex matters could gradually be brought into its mind. In secondary schools full instruction could be given. Sir Victor dwelt with the difficulty with which physicians are faced in public health matters by reason of the law of libel. They ought to be able to warn any one who, to their knowledge was likely to be infected, but at present they were liable to an action for libel. He was in favor of notification to the health officer. This would probably be resented both by physicians and by the public, but the history of notification showed that objections had been made in regard to even the simplest diseases. The notification of scarlet fever was violently resisted at first. The notification should be confidential. He was in favor of treatment in special wards of general hospitals.

Suggested Prohibition of Marriage of Neurotics

In a lecture at the Institute of Hygiene, a leading neurologist, Dr. J. S. Risien Russell, spoke of the congenital defects of the brain and consequent idiocy that tend to follow intermarriage, while to the mating of neurotics, especially epileptics, he said, could be traced a large proportion of neuroses. The rather remarkable fact that neurotics actually tend to marry neurotics called from him the expression, "Would that neurotics could be attracted by the phlegmatic, as the offspring would be much less likely to be productive of so many unstable individuals prone to various mental and nervous disorders." On the facts, however, most authorities are in agreement. The question of prevention is the difficulty. Dr. Russell ad ocated the full policy of prohibition of marriage of persons "known to be affected by some malady of the nervous system that is hereditarily transmissible, even when it is proposed that they should mate with some one of strong nervous organization who comes of a stock free from any suspicion of nerve degeneracy." Neurotic parents should be made to recognize the importance of having their children brought up away from the neurotic atmosphere in which they are usually steeped and which cannot fail to be productive of the most harmful effect.

The Struggle Between the Profession and Friendly Societies in Australia

The relations between the profession and the friendly societies at the antipodes are of the same strained nature as in this country. At a conference of friendly societies held in Sydney considerable discussion took place on this subject. A paper read by Mr. Robert Clark of South Australia shows very well the friendly societies' point of view. The antipathy of the profession in this country to "medical institutes" (organizations for the employment of whole-time physicians to attend the members) has been described in a previous letter to The Journal. In Australia there is the same antipathy. Mr. Clark said that through the establishment of medical institutes, many members of the profession had ceased to entertain that friendly feeling toward societies that formerly contributed to the welfare of all concerned. The institutes, as agencies in friendly society work, had proved of considerable value in some localities, but, owing to the hostile attitude of the British Medical Association, the choice of medical officers was now practically confined to what might be termed "non-union" doctors, and it seemed probable that in the near future the institutes would have trouble in procuring the necessary professional assistance. The friendly society practice had assisted a large number of physicians to attain eminence in the profession. The extent of benefits to members' wives and families had been extremely irritating to the profession, but lack of organization and keenness of competition had enabled the societies to make far-reaching contracts. Clark denied that the societies had sweated the profession. Invariably the doctor had quoted the terms which the society had accepted. That the societies had had the best of the bargain during recent years was generally admitted by leading representatives, and that the profession earned and deserved higher rates of remuneration was freely acknowledged at the 1912 Sydney conference, which agreed, without demur, to increased rates. The organization of the medical profession during the past eight or ten years had been truly marvelous. It was asserted that 98 per cent. of the profession were in the British Medical Association. They were in a position to dictate terms, and it was improbable that societies would be able to supply in the near future the existing medical benefits. The public hospitals were practically closed to lodge members, largely through the influence exerted by the profession. Until very recently a member was admitted on order, and, if he was in a position to pay for attention, he was called on to do so. No objection could be urged to this, and the amount was usually fixed at $5 per week. Now only the indigent were eligible for prolonged treatment. The lodge and family doctor was disappearing, and the mutual confidence which, true to the traditions of each side, existed for generations, was rapidly being dissolved in the commercial atmosphere of the present.

PARIS LETTER

Paris, May 1, 1914.

The Prophylaxis of Leprosy

At its session, April 28, the Académie de médecine terminated the open discussion on the action of the Minister of the Interior (The Journal, Feb. 28, 1914, p. 711) on leprosy, its dangers, and the preventive measures which should be taken against it. The members of the academy passed the following resolutions: (1) leprosy should be included among reportable diseases; (2) lepers should be submitted either to oversight or to isolation, as the case may demand; (3) foreigners suffering from leprosy should be excluded from French territory; (4) a special commission should consider each case. Furthermore, the academy emphasized the fact that to work for the prevention of leprosy in France would be useless unless the public officials could be impressed with the need of rigorous measures against the diffusion of leprosy in the colonies and the countries under the French protectorate, in which the danger is far greater than in the metropolis.

Death of Professor Van Tieghem

French science has suffered a great loss in the recent death of the famous botanist, M. Philippe Van Tieghem who recently died, aged 75. He had been a member of the Académie des Sciences for about forty years and was one of the first of Pasteur's collaborators. At that time he prepared for his doctor's degree in physical sciences, his thesis on the subject of ammoniacal fermentations, which is still considered authoritative. It was in botany, however, that his influence was most important; his "Traité de botanique" completely altered the method of studying that science, at home as well as abroad. The classification of plants has been, one might say, revolutionized by the works of Van Tieghem.

Peritoneal Tuberculosis in Infants

At the last session of the Académie de médecine, Dr. Marfan, professor of therapeutics at the Faculté de médecine de Paris, gave an interesting address on this subject. Tuberculous peritonitis is observed most frequently in advanced childhood, from 6 to 15 years of age; below the age of 6 it is infrequent and appears less often in early infancy. Before the age of 2 years the disease is rarely seen, and has clinical aspects quite unlike the usual symptoms, so that its diagnosis is ordinarily very difficult. Without doubt, some ascitic and fibrocaseous conditions may be observed in infants as well as in older subjects. More often ascites and "peritoneal nodules" are absent; the clinical picture lacks clearness; the diagnosis long remains uncertain. Tuberculous peritonitis is much more dangerous in infants than in older children; below the age of one year it seems invariably to result in death. Its progress is also rapid; instead of lasting for years, the disease develops in some months or even in weeks. One of the conditions which renders the

prognosis more grave is the difficulty of recognizing the disease in time; to recognize it sooner would, perhaps, mean its more successful treatment. Without doubt the skin reaction to tuberculin has greatly favored the early recognition of the disease. In spite of the great value of this test, however, the evidence which it furnishes is not sufficient to establish a diagnosis in every case; when the test is positive it indicates that there is a tuberculous lesion in the organism, but it does not show the location nor does it tell us whether the lesion is active or dormant. For these reasons the clinical examination retains its value.

For guidance in diagnosis, Marfan attaches great importance to the diverse forms of "protuberant abdomen" in the infant. Beside the swelling due to ascites, or to a liquid or solid tumor, two varieties of enlarged abdomen remain: the flaccid, and the tympanitic. The flaccid variety is due to relaxation of the gastric, intestinal and abdominal muscles, and almost always accompanies rachitis, of which it is one of the elements. The tympanitic enlarged abdomen has a varying significance according to its transitory, intermittent, or chronic nature. Transitory tympanites is caused by acute gastro-enteritis or acute peritonitis; intermittent tympanites, whether slight or general, is caused by nervous affections of the stomach or intestines, and perhaps results from the production of gas. As for chronic generalized tympanites, its significance varies according to whether or not it is accompanied by digestive disturbances with diarrhea or constipation. Chronic tympanites with chronic diarrhea is due to intestinal ulcerations; with obstinate constipation and dating from birth or very early life, it is indicative of those forms of congenital constipation which are related to intestinal malformation, and are still grouped under the name of Hirschsprung's disease; without diarrhea and without obstinate constipation, it appears to result from tuberculosis either of the peritoneum, or of the mesenteric ganglions in which the intestine is not involved.

BERLIN LETTER

BERLIN, April 24, 1914.

Annual Meeting of the German Surgical Society

The most important subject for discussion at the meeting of the Deutsche Gesellschaft für Chirurgie, which was held as usual at Berlin, in the middle of April, was the cause and treatment of postoperative ventral hernia, the discussion of which was introduced by Sprengel of Brunswick.

POSTOPERATIVE VENTRAL HERNIA

The speaker distinguished, in addition to the hernia of the abdominal wall in its proper sense, paralysis of the abdominal wall (following section of the nerves supplying the rectus), and stretching of the abdominal wall. The causes of these conditions are the tamponade, wound infection, inaccurate suture and improper suture material and serious postoperative injury, as from vomiting, etc. To these four factors, which have been long known, may be added a fifth, which has been brought out by recent investigation, namely, the use of a physiologically incorrect method of abdominal incision. In view of the fact that not only the technic of tamponing but also the indication for its application have been modified in the course of time and that, on the other hand, a more correct plan of incision is possible, the speaker recommended the following: When it is possible, an alternate incision is to be used, such as is applicable for most gynecologic laparotomies, in almost all appendix operations, in most operations on the kidneys and finally for the treatment of all intraperitoneal and retroperitoneal abscesses. For all severe cases, that is, in general, cases in which a simple suture by layers is not sufficient with a physiologically correct incision, Sprengel recommends the mattress-suture with catgut and a fine linen thread superposed (the material in suppurative cases should be boiled catgut, otherwise fine linen).

Drainage and tamponade he regards as supplementary to the discharge from the abdomen obtained by the operation. By limiting these and fixing more exactly the indications, the prognosis of cases treated by tampons has been improved, although the number of cases has become greater. The method of incision appears not to have the same importance for cases treated with tampons, at least in the upper part of the abdomen, as for the cases which are sutured immediately and the abdomen completely closed. It may be shown by statistics that in the upper part of the abdomen, hernia formation is less frequent than in the lower part, probably because the demands on the abdominal wall are less. The important question, whether or not the attempt to limit the use of tampons also involves danger, was answered in the affirmative and thoroughly discussed. The indication requiring a secondary operation to close the abdomen from fear of a postoperative hernia, the speaker could not endorse. The operative measures for the treatment of an extensive ventral hernia were discussed on the basis of whether the muscular and fascial tissue present (1) is sufficient for a satisfactory closure, or (2) is not sufficient for a satisfactory closure, or (3) is quite insufficient. The speaker advocated an extensive application of transplantation of fascia and condemned the use of material foreign to the body. The autoplastic use of muscle in the sense of the bridge plastic method of Pfannstiel-Menge should be considered as a last resort in extensive hernia. A modification of the last method was recommended.

In the discussion, Perthes of Tübingen recommended the overlapping method of Mayo not only for operations on hernias which have already occurred, but also to prevent them. He had observed only two hernias as a result of infection among thirty-nine cases in which operation had been performed by this method.

Völcker of Heidelberg laid great stress on the preparation of patients who are to be operated on for hernia (reduction of obesity, massage). In the operation itself, he tries to avoid, as much as possible, the opening of the hernia.

Menge of Heidelberg emphasized the fact that the musculature plays a much more important rôle in preventing hernia than the fascia and the aponeuroses. It must be well sutured and anchored by means of a cross-suture of the fascia. In sixty cases which were examined after the operation, he found no hernia. He opposes the wearing of a bandage after the operation.

König of Marburg emphasizes the importance of gymnastic exercises of the abdominal muscles and believes that the earlier demands made on these muscles in children, in whose cases drainage is more frequently employed than in those of adults, protects them from hernia. He employs periosteum from the tibia in cases in which he can get a piece wide enough; in other cases he uses fascia.

Wullstein of Bochum laid stress on the importance not only of the muscles but also of every single layer of the abdominal wall. He uses the principle of doubling in all the layers. He has never found it necessary to use foreign material. He does not agree with Sprengel that a prophylactic operation is not indicated. In case of large incisions and corpulent persons, Wullstein regards this as indicated. In order to obtain a good result, the pendulous abdomen, which is usually present, should be corrected.

Küttner of Breslau, in contrast to the plan of Sprengel, has always sutured with silk and moistened the line of suture with 0.1 per cent. mercuric chlorid, refraining from running sutures. He has remained faithful to the longitudinal incision.

TREATMENT OF MALIGNANT TUMORS

The reports of von Eiselsberg of Vienna on his experience in the treatment of malignant tumors with radium and the Roentgen rays also excited an extensive debate. The speaker first considered the radium treatment and distinguished the prophylactic and the curative treatment. In the first class he has seen good effect in a number of cases, especially a case of carcinoma of the upper jaw (in which operation was performed in 1910) but, on the other hand, he also had injurious effects, as in one case of carcinoma of the tongue. With a view to cure, he has treated only inoperable cases and has seen healing in a number of cases in which, however, a sufficient time has not elapsed to permit him to speak of a permanent cure. Cases of basal-celled carcinoma have shown especially favorable results (seven cures in nine cases). In some cases, by the rays he was able to make operable tumors which were otherwise apparently inoperable. A malignant tumor of the thyroid was healed, but the patient acquired a large radium ulcer which made a plastic operation necessary. Eiselsberg lays stress on the fact that in such cases one must accept this accident as a lesser evil. In a large number of cases, only temporary improvement was obtained. In four cases of carcinoma of the esophagus with much stenosis, dilatation occurred very quickly; but in some of these a new stenosis developed above the tumor as a result of radium burns. Aside from these lesions, however, cases were observed in which the treatment had a directly unfavorable effect. When healthy vessels traverse the area irradiated, there is a direct

danger of erosion and consequent hemorrhage. In some cases, also, a rapidly increasing cachexia was observed as a result of the absorption of the tumor material destroyed by the radium. The same is true of the Roentgen rays as of radium. As yet there have been no permanent successes, but remarkable improvement has resulted. Here also, one must not be deterred by burns of the skin if there can be obtained thereby a cure of the patient from his malignant disease. From his experience, Eiselsberg would give the preference to radium in carcinoma of the esophagus and rectum, but, on the other hand, in a large part of other cases, he prefers the Roentgen rays. Operation should still be performed in operable cases; inoperable cases should receive radiotherapy, and prophylactic irradiation should be undertaken.

In the discussion, Wilms of Heidelberg emphasized the importance of prophylactic irradiation, especially for carcinoma of the breast. In twenty cases of carcinoma of the breast which he irradiated after the operation, the patients suffered no relapse. He was inclined to believe that one might be content with extirpation of the tumor in carcinoma of the breast if an energetic postoperative treatment with the rays was carried out. The regional lymph-nodes were particularly influenced. He explains this by the fact that the autolytic processes which are going on ordinarily in the glands are increased still more by the action of the rays. Carcinomas of the lips and tongue are especially suited to radiotherapy.

Spalitzer of Vienna made a special report on cases treated with the Roentgen rays at the Vienna clinic. Of sixty-four cases, twelve were healed, seventeen remarkably and thirteen slightly improved. Five were aggravated and seventeen showed no effect. These results can be obtained only with modern apparatus by using thoroughly filtered high doses and hard tubes. In the previous use of radium an ulcer occurred more readily. Operable tumors belong to the knife.

Tilmann of Cologne emphasized the slight penetration into carcinomatous tissue and the variable effect of the rays on various tumors which for the present make radiotherapy so uncertain that operable tumors should not be submitted to it. On the other hand, Krönig of Freiburg, in view of the unfavorable statistics of operation, would have operable tumors treated with the rays and that not only in case of carcinoma of the female generative organs but also carcinoma of the breast. Müller of Rostock protested against this proposition, saying that we do not know whether we can secure a final cure of carcinoma with the rays (that is, over five years). On the other hand, we do know that this is attained by surgery.

Werner of Heidelberg also had permanent cures to report; 286 cases were treated with mesothorium. Of thirty-seven carcinomas of the stomach, a distinct retrogression was observed in eight cases. Of nineteen cases of cancer of the esophagus, ten were maintained in good condition for six months, but only one longer than a year.

Heymann of Breslau reported that in the gynecologic clinic of that place operable tumors were surgically treated, but a preliminary treatment with the rays was undertaken for the removal of fetor and hemorrhage. The prophylactic postoperative treatment had been successful, but it must be carried on energetically for many months. The combination of the Roentgen rays with mesothorium has given good results.

Krause of Berlin reported the successful treatment of small relapses by the Roentgen rays and the value of prophylactic treatment after operation on the breast. In two cases, in which it could be shown that a definite part of the breast had not been irradiated, relapses occurred in these places. The rays must be filtered and tubes under ten We. (this refers to Wehnelt's penetrometer) must not be used.

Perthes of Tübingen referred to a case of carcinoma of the lips treated by him by radiotherapy which had remained cured for more than six years.

Fritsch of Breslau discussed Abderhalden's method of serodiagnosis of cancer. He had tried to test its value as an indication for operation. By the use of numerous parallel tests and frequent repetitions of the reaction, it is possible to exclude the principal sources of error, but even then it had only the value of probability and was useful only in connection with the clinical picture. Fritsch believed, however, that even if the scope of application of the reaction is very small, there are cases in which the test can be of service to the clinician, and one is not justified for that reason in rejecting it completely.

Marriages

Caryl Ashby Potter, M.D., St. Joseph, Mo., to Miss Marie Whitney of Brooklyn, N. Y., at Hubbard Woods, Ill., April 4.

Charles Henry Dean, M.D., Northampton, Mass., to Miss Martha Gertrude Jones of Salisbury, Vt., May 6.

Phineas Hilhouse Adams, M.D., to Miss Marguerite La Wall Janvrin, both of New York City, May 5.

David Ralston, M.D., to Mrs. Alice Daly, both of Cadillac, Mich., at Grand Rapids, April 30.

George Enos Miller, M.D., Hammond, Ind., to Miss Eda L. Flasher of Chicago, April 22.

Alford Jay Farnham, M.D., Reinbeck, Ia., to Miss Jean Brown of Traer, Ia., April 29.

Deaths

David William Bulluck, M.D. University of Maryland, Baltimore 1873; a member and once vice-president of the Medical Society of the State of North Carolina; formerly president of the Atlantic Coast Line Surgeons' Association; and at the time of his death president of the Onslow Medical Society; local surgeon at Wilmington, N.C., for the Atlantic Coast Line; a member of the Board of Directors of the Eastern Hospital for the Insane, Goldsboro; and for many years a member of the Board of Health of New Hanover County; died at his home in Wilmington, May 6, from typhoid fever, aged 60.

John Benjamin Lewis, M.D. New York University, New York City, 1853; medical director of the Travelers' Insurance Company, Hartford, for nearly forty-five years; a member of the Connecticut State Medical Society and Association of Life Insurance Medical Directors; surgeon of the Fifth Connecticut Volunteer Infantry, later Brigade Surgeon and medical director of the department of West Virginia during the Civil War; brevetted lieutenant colonel in 1865 for 'faithful and meritorious service'; died at his home in Hartford, April 26, aged 82.

Charles N. Field, M.D. College of Physicians and Surgeons in the State of New York, 1870; a Fellow of the American Medical Association, and American Academy of Ophthalmology and Laryngology; a member of the American Association for the Advancement of Science, and the American Association of Railway Surgeons; a veteran of the Civil War, in which he served in the Hospital Corps of the First New York Volunteer Infantry; a practitioner of Jefferson, Ia., since 1871; died at his home in that place, May 7, from pneumonia, aged 71.

Samuel G. Gray, M.D. University of Pennsylvania, Philadelphia, 1863; a member of the Medical Society of the State of Pennsylvania; and once vice-president of the Lancaster County Medical Society; assistant surgeon of the Twenty-Ninth Pennsylvania Volunteer Infantry and surgeon of the Twentieth Pennsylvania Cavalry during the Civil War; from 1875 to 1878, a surgeon on Atlantic liners; died at his home in Landisville, May 2, from heart disease, aged 76.

William Edmond Weber, M.D. College of Physicians and Surgeons, in the city of New York, 1894; a Fellow of the American Medical Association; chief inspector of the milk department of the New York Board of Health; attending physician to the German Hospital; and lecturer on pediatrics in the New York Polyclinic; died suddenly in a subway station in New York City, May 7, aged 46.

Thomas Corwin McCaughey, M.D. Rush Medical College, 1868; one of the most prominent practitioners of central Illinois; a Fellow of the American Medical Association; and once president of the Vermilion County (Ill.) Medical Society; a veteran of the Civil War; died at his home in Hoopeston, Ill., May 6, from heart disease, aged 73.

Archie Eli Brimmer, M.D. Rush Medical College, 1910; of Minneapolis; a Fellow of the American Medical Association; died in the Eitel Hospital, Minneapolis, May 4, from meningitis, a week after a surgical operation, aged 31.

Lucius Lavoisier Lamar, M.D. University of Texas, Galveston, 1903; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home in Florence, Texas, May 2, aged 35.

Henry Cabell Tabb, M.D. Medical College of Virginia, Richmond, 1860; surgeon in the confederate service throughout the Civil War; for twenty years medical director of the Life Insurance Company of Virginia; died at his home in Richmond, Va., May 7, aged 75.

Patrick J. McKeown, M.D. Bellevue Hospital Medical College, 1890; a Fellow of the American Medical Association; formerly health officer of Long Island City; and a member of the staff of St. John's Hospital; died at his home in Long Island City, May 3, aged 53.

Frederick W. Meddaugh, M.D. Jefferson Medical College, 1909; of Williamsport, Pa.; a member of the Medical Society of the State of Pennsylvania, aged 26, was killed in an automobile accident on the Lycoming state road near Williamsport, May 5.

John A. Brobst, M.D. College of Physicians and Surgeons, Baltimore, 1885; secretary to Secretary of the Navy Thompson, at the time of the settlement of the Nova Scotia fisheries claim; died at his home in Allentown, Pa., May 4, from septicemia, aged 61.

Elmore Y. Munsell, M.D. Starling Medical College, Columbus, Ohio, 1869; for twenty-one years a practitioner of Portland, Ore., but for the last four years a resident of Ocean Park, Wash.; died in the Good Samaritan Hospital, Portland, April 28, aged 75.

James Ney Wright, Jr., M.D. University of Michigan, Ann Arbor, 1882; a member of the board of liquor license commissioners of Licking County, Ohio; formerly county auditor; died at his home in Newark, Ohio, about May 5, aged 55.

William H. Minnich, M.D. College of Physicians and Surgeons, Baltimore, 1890; a member of the Medical Society of the State of Pennsylvania; for eight years jail physician of York County; died at his home in Dallastown, Pa., May 1, aged 49.

James S. Black, M.D. For sixty-three years a practitioner of Ohio; died at the home of his son in McConnellsville, Ohio, February 6, from uremia, aged 87.

James O. Stewart, M.D. McGill University, Montreal, 1880; for many years a practitioner of Cazaville, Que.; died at his home in Montreal, February 20.

Elva M. Thornberry, M.D. Western Pennsylvania Medical College, Pittsburgh, 1887; died at his home in Barnesville, Ohio, March 13, aged 49.

Norman Glenn Parker, M.D. Cleveland University of Medicine and Surgery, 1897; formerly of Onawa, Iowa; died in Port Royal, Pa., March 15.

Oliver L. Blachly, M.D. Jefferson Medical College, 1887; formerly of Sparta and Wilkinsburg, Pa.; died at his home in Pasadena, Cal., April 18.

Nelson Loar, M.D. Physio-Medical College, Cincinnati, 1867; died at his home in Bloomington, Ill., April 29, from senile debility, aged 74.

Annie M. Brown, M.D. Women's Medical College of the New York Infirmary, 1880; died at her home in Brooklyn, N. Y., April 30, aged 72.

Harry Atherton Smith, M.D. Medical School of Maine, Brunswick, 1890; died at his home in West Roxbury, Boston, April 27, aged 47.

Eugene Frederick Pearce, M.D. Long Island College Hospital, Brooklyn, 1883; died at his home in Brooklyn, April 30, aged 55.

George H. W. Ryan, M.D. McGill University, Montreal, 1899; died at his home in Vermillion, Alta., February 21, aged 40.

John C. Peyton, M.D. Jefferson Medical College, 1866; of Winter Garden, Fla.; died in Orlando, Fla.; February 27, aged 72.

James W. Long, M.D. Meharry Medical College, Nashville, 1899; died at his home in Texarkana, Texas, April 25, aged 41.

James J. Brown, M.D. University of Toronto, Ont., 1887; died at his home in Owen Sound, Ont., February 24, aged 53.

George B. Loring, (license, Utah, five years' practice, 1894); died at his home in Monroe, Utah, April 25, aged 49.

Walter Cartier, M.D. Laval University, Montreal, 1905; of Coteau Station, Que.; died in Montreal, January 28.

T. R. Dice, M.D. St. Louis Eclectic Medical College, 1876; died at his home in Utica, Mo., April 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE TURNOCK MEDICAL COMPANY

The Lynott-Katz-Read Mail-Order Medical Concern Declared Fraudulent by the Federal Authorities

The Turnock Medical Company was a fraudulent mail-order concern operating from Chicago. May 6, 1914, the Postmaster-General issued a fraud order against the Turnock Medical Company and Dr. T. Frank Lynott, the medical employee who is described in the Turnock "literature" as the "specialist in charge." At the time the federal authorities put the quietus on this fraud, the Turnock Medical Company was receiving about four thousand letters a day from the gullible sick, and its income is said to have been approximately $350,000 in the last year of its existence. It has been doing business eight years.

For some years past, the Propaganda Department has been keeping itself informed on the methods of the Turnock Medical Company and T. Frank Lynott. Until comparatively recently, the men behind the Turnock Medical Company are said to have been:

EUGENE KATZ, President and Treasurer.
GEORGE J. KATZ, Vice-President.
SAM D. KATZ, Secretary and Manager.

In the operation of a mail-order medical concern a knowledge of medicine is not necessary. A due appreciation of the gullibility of the sick; an absence of moral sense; an utter disregard for truthfulness and common honesty—these are the essential requirements to make a commercial success of concerns like the Turnock Medical Company. And the Turnock concern apparently fulfilled these requirements.

THE PERSONNEL

Eugene Katz is said to have been a professional advertisement writer before he went into the fraudulent medical mail-order business. George J. Katz and Sam D. Katz were indicted by a federal grand jury in January, 1914, on the charge of operating a fraudulent mail-order concern under the style of "Dr. G. B. Abbott." The "Sam Katz Oxygen Catarrh Treatment" is another fraud operated from the same address as the Abbott swindle.

THE COMMERCIAL VALUE OF URIC ACID

The Turnock Medical Company sometimes advertised under its own name and sometimes under the name of Dr. T. Frank Lynott. Its advertising slogan was "Uric Acid." All diseases, according to the Lynott-Turnock theory, are due directly or indirectly to uric acid. During the past three or four years letters have been sent to the Turnock Medical Company under various names and from widely separated places, describing various hypothetical cases. One letter was sent in describing a well-advanced case of cancer of the rectum. According to Lynott's "diagnosis," this unfortunate individual had an "excess of uric acid." Wrote the quack:

"I am positively certain in my own mind that I have the method to cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. . . . A person at your age has still a long and happy life ahead if the disease can be gotten rid of now."

A letter mailed from another part of the country contained one of Lynott's "symptom blanks" on which check marks had been placed against the following symptoms: (1) "Too frequent desire to urinate;" (2) "Pain or soreness in the bladder;" (3) "Pain or soreness in the kidneys." This hypothetical party, according to Lynott's "diagnosis," also suffered from an "excess of uric acid," and Lynott wrote, per stock letter "A":

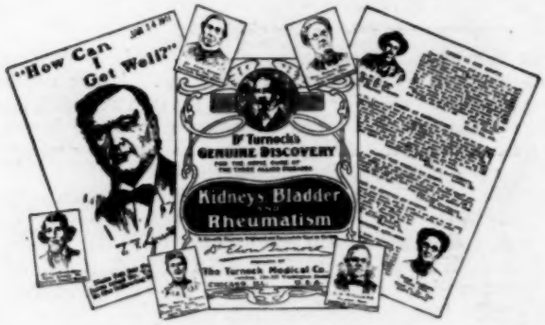
"I am positively certain in my own mind that I have the method to cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. . . . A person at your age has still a long and happy life ahead if the disease can be gotten rid of now."

A third letter, sent from still another address, merely asked about the Turnock Medical Company's "treatment." Its writer, too, was told he had excessive uric acid!

During the past three or four years, physicians have sent us letters received by some of their patients who had "fallen for" the Turnock advertisements, and in every instance, no matter what the ailment of the patient, Lynott was "positively certain" in his "own mind" that he could cure the patient. This merely meant, of course, that in common with all mail-order medical concerns, the Turnock Medical Company had an elaborate series of "form letters" that were sent out to the prospective victims that answer advertisements. The much vaunted "individual treatment" received by people who write to such concerns consists in turning the letter over to mailing clerks who see that a given stock letter is sent to the unfortunate sufferer and dupe—prospective or present.

THE FREE TRIAL TREATMENT

The scheme of the Turnock Medical Company was to advertise a free treatment, "I am giving away $10,000 worth of medicine," declared Dr. T. Frank Lynott. The Turnock advertisements also contained a list of eighteen "symptoms" which "uric acid sufferers" might be expected to have. Symptom 1 was "Pain in the Back." As this symptom bears



Some pages and clippings from the book "How Can I Get Well," sent out by the Turnock Medical Company.

about as much relation to "excessive uric acid" as it does to that equally vague and uncertain condition known as "female trouble," it might be counted on to catch many "suckers." Symptom 5 was "Prostatic Trouble"—also, we are asked to believe, the result of "excessive uric acid." Symptom 8 was "Pain or Soreness under the Right Rib," Symptom 10, "Constipation or Liver Trouble" and Symptom 13, "Pain in the Neck or Head." The all-inclusive character of these symptoms made it easy to impress the general public with the idea that "excessive uric acid" was the *bête noire* of existence; hence, send for a "free trial treatment" of Dr. Turnock's Genuine Discovery!

THE "FOLLOW-UP" SYSTEM

Possibly the best way of describing the methods pursued by the Turnock Medical Company will be to give in some detail one of a number of cases that have been followed up by THE JOURNAL.

A postal card was written by a man we will call Mr. Blank, from a town in North Carolina. It asked the Turnock Medical Company for information regarding its "treatment," but gave no description of a case, either real or hypothetical. By return mail back came form-letter, "T. F. L. 2," reading in part as follows:

"*My dear Mr. Blank*:—Your request came duly to hand, and knowing that you must be anxious to hear from me, I hasten to reply enclosing the promised free matter. But I want to give your case careful and conscientious study, as it presents many interesting phases to me, and rather than give a hasty diagnosis, I prefer to give the symptoms, etc., complete thought for a few days, and then let you hear from me in detail with confidential facts.

"In the meantime, in order that you should not be kept waiting, and so that you may have your system nicely prepared for treatment, I enclose herewith a free supply of Dr. Turnock's Genuine Discovery in the form of general specific Uric Acid medication, which will apply to your case for the present in a general way. I will then have completed my regular and confidential diagnosis and found out just exactly what you need in every particular as to ingredients, medications, diet, special advice, etc., so that I can then recommend with sincerity a reliable and accurate personal specific for your cure. I am also anxious to compare your case with others I have treated in the past 25 years."

The "free" matter referred to in the letter consisted of a book entitled, "How Can I Get Well?" and a small cardboard box containing a number of small sugar-coated tablets. Four days later came form-letter, "T. F. L. 3," reading in part as follows:

"*My dear Friend*:—You were expecting to hear from me before this, but several points came up that required attention and delayed me. I have now completed a most careful personal examination of your case and can say with all truth that I feel absolutely sure you are curable. In the short space of a letter a full and detailed description of your symptoms, or the causes and effects of your afflictions could not be given. But in the pictorial pamphlet "How Can I Get Well?" that I sent you with the free trial treatment, I have more fully described your diseases, which are *Kidney Trouble and Excess of Uric Acid, on pages, 14 & 15, 32 & 36 & 33 & 49.*

"I am positively certain in my own mind that I can cure you. The suffering that you have undergone in the past must convince you that there is no time to be lost. The older a disease like yours gets the more misery and pain it causes. The sooner it is cured the more days you have to enjoy life, and the longer your life will last. A person at your age has still a long and happy life ahead if the disease can be got rid of now.

"Realizing how necessary it is that you shall begin your cure at once, I have sent the full course of home treatment direct to your address to-day by mail at our expense. This will give you a chance to see what you are getting. Most doctors would ask you for the money first, but that takes time, and you have no time to lose; other doctors send treatment by Express C. O. D., but this is neither honorable nor fair, as you can't see what you are getting and it adds to your expense. So I thought that the Direct Delivery would be the better way, and I know you will agree with me and appreciate it."

PLEASE REMIT THREE DOLLARS

For the "full course of home treatment" the victim thus has foisted on him unasked, he is requested to remit $3. Should he not care to take the treatment, he is told: "Do not return it until I send postage as it may get lost." The reason for this warning is twofold: First, it permits the victim to retain the pills during a period in which he will be bombarded with insistent follow-up letters from Lynott urging him to take the "treatment" and in time reducing the price asked for it; second, as it costs four cents postage to send these pills, it would be a losing game for Lynott to request their return as the "$3 treatment" was not worth four cents. As a matter of fact, of all the cases THE JOURNAL has investigated—and they are many—in not one did the Turnock Medical Company ever send the four cents for the return of their "treatment" for which they asked $3.

The "full course of home treatment" came in a cardboard box about 4 inches square and 1 inch deep. In this box were three other boxes; one of them contained about 30 oblong, sugar-coated tablets, colored a vivid vermilion; box 2 contained about the same number of tablets of the same size colored a rich purple; box 3 contained two kinds of tablets, one labeled "Constitutional Remedy," and the other, "Vitalizer Remedy." The "Constitutional Remedy" consisted of twenty-three small chocolate-coated tablets, laxative in character and apparently nothing more than the common aloin, belladonna and strychnin pill. The "Vitalizer Remedy" consisted of fourteen sugar-coated tablets bright orange in color. No matter what the case, the victims all received the same purple, scarlet, orange and chocolate-coated tablets and the same set of follow-up letters.

If no notice was taken of the letters or pills, form-letter "T. F. L. 4" came in due time. Dr. Lynott was feeling pained at the patient's indifference. He wrote:

My dear Mr. Blank:—Excuse me for writing you so soon again, but it seems strange I have not had a definite answer from you since sending the special treatment. I ask you is this fair? Is this treating me as kindly as I treated you? I want you to consider the 101 names of cured people, covering every Uric Acid disease that I guarantee to cure. Now could I have so many testimonials from total strangers if Dr.

Turnock's Genuine Discovery were not a wonderfully curative home treatment?

"I have made you the lowest price I can possible make you. It is lower than you can get such treatment for anywhere else in the world. It is less than one-half what thousands of others have paid in the past. It is simply the price of one visit to any reputable physician. And I include a whole treatment of medicine and I charge nothing extra for my professional services. What more can you ask?

"I have given you endless proof of what the treatment will do for you, have legally guaranteed to cure you and have offered you a treatment that has always sold for five dollars for just three dollars, and if you now want to know about my own and the Company's responsibility—its financial ability to carry out guarantees—then write to the Colonial Trust and Savings Bank, to Chas. J. Grady, or A. E. Fechter, his successor, one of the most prominent druggists in Chicago, to Roberts & MacAvinche, among the best known concerns of its kind in the world, and to your friends who live in Chicago."

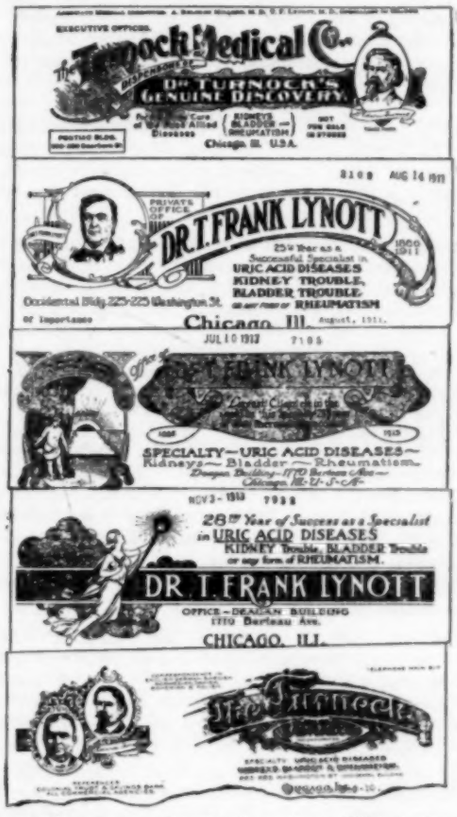
Thus, and much more; closing with the statement: "I look for your order just as fast as the mails can bring it." Continued silence brought "T. F. L. 5," in which Lynott says:

"My dear Mr. Blank":—I enclose herewith a copy of a letter I addressed to you some days ago, as I have not heard from you regarding the matter. Whether the other letter reached you or not, do me the favor to read the attached letter over again. I believe it will convince you that you ought to pay for the treatment and begin to use it at once.

"This is no trifling matter, and that is why I took it upon myself to send you the treatment without loss of time. That proves my sincerity and friendship to you.

"This treatment is suited to your case. I feel positive it will cure you. I have successfully cured hundreds upon hundreds of people, so why should you doubt that I know how to cure you?

"I specialize in uric acid ailments such as yours and their complications. I specialize therefore in the very disease that you have. Why should I not be able to cure you? Are the tens of thousands I have treated no advantage in my favor?"



Some of the numerous letterheads used at different times by the Lynott-Turnock outfit.

NOW OFFERED AT HALF PRICE

"Do not ignore this matter," continues Dr. Lynott. "It may be that the span of your life depends on my treatment." In form-letter "T. F. L. 6," Turnock cuts the price in half.

"My dear Mr. Blank":—Have been trying to find a reason why you have not yet accepted the treatment recently sent you at my expense. Have come to the conclusion that perhaps you cannot afford to pay out three dollars just at this time, and yet you do not feel like writing me about it and asking for a reduction.

"If that is so I will at once put you in a position where you can easily get the treatment. I know that sick people have many expenses, and I want to help them in every way I can and do all in my power to lighten their burdens. So by following the advice contained in this letter you will be safe. It is this:

"Send me one dollar and a half and take the treatment. This is a reduction of one-half, or fifty per cent. I do this because I believe you need the treatment, and I hope you will appreciate the reduction."

Then another wait, and a printed form comes offering the "treatment" for "Only One Dollar." If this, too, fails to bring results, the Turnock Medical Company charges the form-letters and pills up to profit and loss, drops the name from its mailing list and presumably rents or sells it to other concerns in similar fraudulent businesses.

In the memorandum of Assistant Attorney-General Lamar to the postmaster-general recommending the issuance of a fraud order against the Turnock Medical Company and Dr. T. Frank Lynott, most of the facts already given were brought out. In addition, the following came to light:

THE READ-KATZ ARRANGEMENT

The individual claiming to be the sole owner of the Turnock Medical Company at the time the case was brought up for trial was one George H. Read. He was represented in this case by Attorney W. Knox Haynes of Chicago, the same lawyer, by the way, that appeared in defense of the Marjorie Hamilton and Texas Guinan frauds. Doctors Frederick A. Jefferson and James W. Hall of Chicago appeared as expert witnesses for the Turnock fakery. While Eugene Katz was alleged to have withdrawn from the Turnock business, the following quotation from the assistant attorney-general's memorandum throws an interesting light on the real facts of the case:

Every fraudulent mail-order concern issues a certificate guaranteeing either a cure or a return of your money; the Turnock Company was no exception. Here is a reduced reproduction of the Turnock Medical Company's "guarantee certificate." Note the impression the concern attempted to give that the guarantee was authorized by the State.

"Mr. Read claims that he purchased the business from Katz in May for a consideration of $125,000, represented by twenty-five notes payable over a period of about one year. Mr. Read admitted that the net receipts of the business for the year preceding the alleged sale were approximately $70,000, that the stock is on deposit as security for the notes; that there was an understanding that the notes were to be allowed to run at interest after maturity if not paid at that time; that a report is made each month relative to the business by Read to Katz, and that they have had a number of interviews since the alleged transfer although Katz has since then been a resident of New York. On the advice of counsel, Mr. Read declined to produce any of the monthly reports which he has made to Katz. Read admitted further that he draws from the business as a salary, $10,000 a year. It is apparent that Katz has retained more or less of an influence and interest in the conduct of the business."

ALL "TREATMENTS" THE SAME

The postal inspectors who investigated the Lynott fraud submitted under assumed names a number of the symptom

coupons from the Turnock advertisements checking different symptoms. They, in common with others who answered advertisements, received the regular follow-up letters, the "free trial treatment" of pills and the unasked for, "full course of home treatment." On this point the assistant attorney-general said:

"The evidence shows that the treatment sent in all of these cases was the same, and consisted of well-known drugs which are sometimes prescribed by physicians as diuretics, expectorants, stimulants and cathartics, dependent on the conditions present in each individual case. The 'free treatment' consisted of the same medicine, but in smaller quantity. The medicine thus sent out is intended for the elimination of excessive uric acid from the system, and is of some value for this purpose when prescribed in accordance with the individual requirements of each case.

"That the symptoms set forth above may arise from a number of causes is such a well-recognized fact as hardly to require expert testimony to prove. However, the physicians who were present at the hearing were examined on this point, and they agreed that none of these symptoms, taken alone or in combination with any or all of the others

Send Me a Dollar!

When you wrote us for treatment we sent you some free. Then when your symptom blank came, we decided that you urgently needed regular treatment. What did we do? Keep writing you letters about it asking for money in advance, and wasting your time and postage, while giving your disease a chance to get worse?

NO!

We sent you the treatment you needed and prepaid the charges. The company took the chances, not you. How did we come out of the transaction? Very easily. We lost all around. We went to great expense and got nothing for it. Now we ask you kindly to

Help Pay Expenses

It is costly to send out remedies the way we do. And yet we believe it is the only way to do it in justice to those who are sick. It gives them a "square deal" in seeing what they are getting. All we ask is a square deal.

The symptom blank you filled out showed clearly that you needed the kind of treatment I sent you. Then why not take it? It is as good today as it ever was. Take it, and send the company only one dollar and thus help pay expenses, while at the same time helping yourself to be cured. Or, if you know of a friend who needs such a treatment, make them a present of it. How can you spend a dollar to better advantage?

I won't say another word. Send the dollar and take the treatment. Make your remittance to

DR. T. FRANK LYNOTT
or THE TURNOCK MEDICAL CO.

Photographic reproduction, greatly reduced, of the last of the follow-up series in which Lynott offered to take one dollar for the treatment for which he first asked three dollars. If this offer were not accepted it did not pay Lynott to send the four cents postage necessary for the return of the pills.

necessarily indicated an excess of uric acid in the system but might be due to other conditions requiring treatment of another kind. On this point there was no contrariety of evidence. While the physicians who appeared voluntarily at the request of this office asserted that there were many other causes of these symptoms just as common, if not more so, than excessive uric acid, the experts employed by the respondents stated that, although there were many other causes, excessive uric acid was the most common. In view of their admission, however, that there are many other causes, it follows that even on this theory, excessive uric acid is the cause in only a small percentage of the cases. The physicians called by this office also testified that some of the diseases represented by these symptoms were incurable and others curable only by a surgical operation, and that the applicability of this medicine in any case where the symptoms were in fact due to excess of uric acid was dependent on the conditions present in each individual case. Whether, then, this treatment would be of any value whatsoever in any case where prescribed in accordance with this system is entirely a matter of chance. I am satisfied from the evidence that all of the above facts were at all times well known to the respondents.

REPRESENTATIONS FALSE AND FRAUDULENT

"I therefore find that the above representations calculated to lead the reader to believe that, if he is suffering from any of the symptoms set forth in the advertisement, he is in need of the medicine offered by this company; that the company can and will diagnose the disease from which the addressee of the form-letters is suffering, by this system; that it has determined the disease or diseases from which the addressee is suffering; that it has determined that the addressee is curable, and that it knows that the medicine is suited to the case—are all false and fraudulent. I also find that the representations contained in the advertisement calculated to lead the reader to believe that he may obtain free a remedy for his disease is a fraudulent device intended to induce the sending to the company of names and addresses without making the promised return therefor, but instead thereafter advising the writer in effect that the remedy necessary for his cure must be paid for. I also find from the evidence that this treatment prescribed in this way is not of the efficacy represented in the advertising matter of this concern, and that it is in fact not different from, or better than, other treatments used for the same purpose."

NOT A MATTER OF OPINION

Like every quack and every exploiter of fraudulent "patent medicines" when caught in the net of the law the argument was advanced that the curative value of the Turnock Treatment was a matter of "opinion." To quote again from the attorney-general's memorandum:

"In argument and in his brief, Mr. Haynes insists that the question in this case is a question of opinion, and therefore not a proper question for the Postmaster-General to determine one way or the other. The question in the case is not, however, as he assumes, whether or not this medicine will cure or benefit conditions due to excess of uric acid, but whether or not the company makes false and fraudulent representations of fact in order to accomplish the sale of the medicine; and that it does so is, in my opinion, clearly shown by the evidence. The inevitable result of the system followed by this company in its treatment of disease is the defrauding of a large number of people out of money which they can ill afford to lose for drugs for which they have no need, and in a great many cases a resultant postponement of proper treatment, in some instances until too late."

In view of these facts Judge Lamar reported to Postmaster-General Burleson:

"I find that this is a scheme for obtaining money and property through the mails by means of false and fraudulent pretenses, representations and promises, in violation of Sections 3929 and 4041 of the Revised Statutes, as amended; and therefore recommend that a fraud order be issued against the parties named in the caption of this memorandum."

As previously stated, the mails were closed to the Turnock Medical Company and Dr. T. Frank Lynott on May 6, 1914.

[A business that brings in $350,000 a year is, it seems, not one to be abandoned without a fight. The Chicago papers announce, as we go to press, that the Turnock Medical Company has filed a petition for injunction to prevent the enforcement of the fraud order.]

The Average Mind.—The perfect physical form in man or woman is much more sought than found. The perfect mental form is even more rare. The best to hope for in the average man, from nature and nurture, is to have a right judgment in all things. In how few of us is this consummation reached! One philosopher made the comforting remark that "every man has a sane spot somewhere." Burton, in his survey of humanity in the famous "Anatomy of Melancholy," concludes that the whole world is mad, and needs a journey to Anticyra (where the best hellebore, a specific against madness, was grown).—Osler: Specialism in the General Hospital.

Correspondence

Some Statistics Concerning the Academic Careers of Medical Students

To the Editor:—The records of state board examinations, while they give an excellent idea of certain end-results obtained in the medical schools of this country, convey no hint of what might be termed the academic morbidity and mortality. Like a case of well-developed chronic disease, they represent merely the terminal stages, and there is no way of tracing through them the various metamorphoses that resulted in the finished product. The following figures are based on the records of the students entering the Yale Medical School from 1896 to 1908. They cover a period during which the requirements for admission were changing, and this gives an opportunity to compare students who were prepared to enter the medical school under different systems as to their capacity to grasp the subject of medicine and to pass through the medical school with or without conditions. Of the 518 students whose records were analyzed, 52.8 per cent. were graduates of high or preparatory schools; 16.2 per cent. entered on examination; 14.6 per cent. had spent from one to three years in colleges or scientific schools, and 16.2 per cent. were graduates of colleges or scientific schools.

Of this entire number, 58.8 per cent. graduated from the Yale Medical School, 85.9 per cent. of them in the minimum required period; 11.8 per cent. in one year more, and 2.2 per cent. in two years more than the minimum required period. These figures possess a certain interest on account of the different attitude toward graduation which is taken in European countries and in the United States. In Great Britain—if we may judge from the report of Mr. Hallett—it is expected that a considerable proportion of medical students will not graduate in the minimum required period of study. On the Continent of Europe, too, it does not appear to be regarded as disgraceful for a student to fail in his first attempt to obtain a degree, and the course may be voluntarily extended beyond the minimum required period. In this country, however, a certain stigma seems to attach to the individual who fails to obtain his degree in the minimum time of study required. It is a grave question whether this is not a distinctly fallacious attitude, largely because it fails to take into account the fact that there is a marked disparity in the capabilities of different men, even though they have equivalent preliminary training, to master in a fixed time the essentials of a difficult subject like medicine. On the other hand, it seems possible that the European attitude of allowing a man to continue studying year after year, even though he appears to lack the mental attainments necessary for the mastery of medicine, is perhaps too liberal an attitude, and not conducive to the best interests of the students or of the profession.

STATISTICS REGARDING 305 GRADUATES OF YALE MEDICAL SCHOOL

Preliminary Qualifications	Time Required to Graduate			Honor Winners				Completed Course Without Conditions
	4 Years	5 Years	6 Years	All Kinds	Cum Laude	Gold Medal	Keese Prize	
Grads. of High Schools.	81.6	15.0	3.4	12.6	8.6	5.4	2.8	44.8
Entered on Examination	86.0	11.7	2.3	18.6	18.6	6.9	2.3	46.5
1 to 3 Years of College.	89.2	10.8	...	28.5	25.0	14.8	7.1	53.5
College Graduates.....	96.7	3.3	...	42.6	36.0	11.8	9.8	65.5

Comparing the four groups of students with regard to their ability to complete their medical course in the minimum required time, it is found that 81.6 per cent. of the high-school graduates, 86 per cent. of those entering on examination, 89.2 per cent. of the college undergraduates, and 96.7 per cent. of the college graduates completed the course in the minimum amount of time. None of the college undergraduates or graduates took more than an extra year to obtain a degree, while 3.4 per cent. of the high-school graduates, and 2.3 per cent. of the students entering on examination took two extra years to do so.

It is interesting to compare the record of the different types of entrants with regard to the obtaining of honors, prizes or honorable mention. Of the total number of graduates, 20.9 per cent. obtained one of these forms of distinction, and of this group 12.6 per cent. were entrants from high schools; 18.6 per cent. entrants on examination; 28.5 per cent. undergraduates of colleges, and 42.6 per cent. graduates of colleges. The distinction awarded in this school are the *cum laude* degree, the conferring of which is based on the entire record of the student; the Campbell gold medal, which is given the student having the highest marks for the complete course, and the Keese prize for the best thesis, which is not usually awarded unless theses containing original work are submitted. So far as the *cum laude* awards are concerned, 8.6 per cent. of the high-school entrants who graduated received the *cum laude*, 18.6 per cent. of those entering on examination, 25 per cent. of the college undergraduates, and 36 per cent. of the college graduates. The Campbell gold medal was won by high-school entrants in 5.4 per cent., by those entering on examination in 6.9 per cent., by college undergraduates in 14.8 per cent., and by college graduates in 11.8 per cent. The Keese prize was won by high-school entrants in 2.8 per cent., by those entering on examination in 2.3 per cent., by college undergraduates in 7.1 per cent., and by college graduates in 9.8 per cent. These figures bring out several suggestive points, of which two stand out rather prominently: (1) the success of men entering on examination over the high-school entrants in obtaining the *cum laude* degree, and (2) the great preponderance of college undergraduates and college graduates among those who won the Keese prize, which, as stated, is based on evidence of ability to do research work. The success of the examination entrants is probably due to the fact that many of them were unusually earnest students who had overcome their defects in preliminary education by determined work and who exhibited the same quality of determination in their work as medical students.

Of the total number of students who graduated from the institution, only 50.1 per cent. passed through their entire course without conditions, and here, again, the college undergraduates and college graduates furnished the largest percentage of successful students; 65.5 per cent. of the college graduates and 53.5 per cent. of the college undergraduates passed through without conditions, while only 44.8 per cent. of the high-school graduates, and 46.5 per cent. of those entering on examination were able to do this.

The migration of students who had no conditions to other schools was comparatively small among the high-school and examination entrants, and large among the college undergraduates and graduates. Only 2.5 per cent. of the unconditioned high-school entrants, and 4.7 per cent. of the unconditioned examination entrants went to other schools, while 38.1 per cent. of the college undergraduates, and 14.2 per cent. of the college graduates went elsewhere. This state of affairs is largely due to local conditions, more especially to the existence of the so-called "combined course" in connection with Yale College. As a result of the existence of this course, many men who entered Yale College with the idea of studying medicine, or who resolved to study medicine during their college course, elected the first two years of medicine during their third and fourth college years, and received the A.B. degree at the end of their second year in medicine. Having already spent four years in New Haven, and doubtless influenced to some extent by the supposed paucity of clinical material here as compared to the larger centers, these college men migrated in considerable numbers at the end of their preclinical years.

The number of students who originally entered this institution but subsequently obtained their M.D. degree elsewhere, was 14.8 per cent. of the total entrants, and of this number 46.7 per cent. left here with either past or existing conditions. The number who failed to obtain the M.D. degree elsewhere—so far as can be discovered from an examination of the

medical directories—was 26.2 per cent. of the total number of entrants. It would appear from these figures that, roughly speaking, three-fourths of those men who attempt to obtain a medical degree succeed in doing so. This percentage of success, however, is obtained only by the migration of a considerable number of poor students to schools with low standards. It is probable that in many of the poorer medical schools almost all of the student immigrants are of this class. The fact that a considerable proportion of the emigration from this school has not been of this type is due entirely to the local conditions which have already been discussed.

In a general way, these statistics show that the man with college training has a very decided advantage in the study of medicine. It hardly needed figures to show this, but it is of interest to note that figures bear it out. They also suggest that some provision should still be made so that the unusual man, whose preliminary education has not conformed to the set standards, may have opportunity to study medicine without being forced into the low-grade medical school. They suggest that satisfactory provision for the freer migration of medical students is desirable. From experience with a very considerable number of migrants, I believe that a free interchange—at any rate among schools rated in the same class—should be encouraged in the case of good students. These should be allowed to pass from school to school without having to submit to harassing red tape. On the other hand, the migration of lame ducks from one school to another should be discouraged. It is true that the state board examinations weed out the incompetents, but it hardly seems right to allow a person who is obviously unable to meet the requirements of an exacting profession like medicine to spend years in costly preparation only to find himself disbarred from practicing his profession at the end of his period of preparation. It is both kinder and juster to such persons to discourage them during their career as medical students, and while such a policy must of necessity result in occasional mistakes and injustice, it is, we believe, the most desirable one both from the points of view of the medical student, the profession and the public.

George Blumer, M.D., New Haven, Conn.,
Dean, Medical Faculty, Yale University.

A Plea for Certain Medical Officers of the U. S. Army

To the Editor:—The act of Congress approved April 23, 1908, provides for a Medical Reserve Corps of the U. S. Army, and the appointment thereto of the contract surgeons who were then in the service and received the recommendation of the Surgeon-General. The officers so appointed are debarred by this law from retirement, and by various decisions of the War Department and the Attorney-General of the U. S., from receiving credit for their former service as contract surgeons in reckoning longevity pay.

By the act approved March 3, 1911, Congress has granted to the dental surgeons the right to retirement on account of age or disability, as in the case of other officers and credit for time served as contract dental surgeon in computing increased service pay.

The functions of the Medical Corps and the Medical Reserve Corps are one and the same, and the many varied and complex duties which the officers in each corps are required to perform are alike. In spite of the status of the officer in the Medical Reserve Corps, he has the same spirit and pride to uphold the honor and dignity of the profession, to render to his country service of a high standard of excellence and to maintain social consideration; and to the performance of his duties he dedicates himself with the same zeal, industry and faithfulness as his colleagues in the Medical Corps.

The law under which the medical department of the U. S. Army was reorganized in 1908 does the greatest injustice to the officers of the Medical Reserve Corps. They are the only commissioned officers in the Army denied the privilege of retirement. The law relative to the dental surgeon is a good one, a step in advance. He does not get more than he deserves. But comparing service, it is believed that a longer stride should have been made by Congress, with the same effort, and equal provision made for the officer in the Medical Reserve Corps, as he surely is entitled to and should receive the same privileges of retirement for disability or age as the dental surgeon and other officers of the Army.

Do the distinguished gentlemen on the inactive list of the Medical Reserve Corps realize that when they are called to active duty and respond (as they will do), they may be wounded in battle or be incapacitated from disease and rendered physically unable to resume the lucrative practice which they have patriotically relinquished to serve their country, and if such an unfortunate event should occur, the most they could hope for is a meager pension?

The existing law specifically states that no officer of the Medical Reserve Corps shall be entitled to retirement pay (Section 9, Act of April 23, 1908); yet their colleagues in the regular Medical Corps, and dental surgeons, even though just commissioned, are entitled to and will receive retirement under such conditions.

It is believed that the officers of the Medical Reserve Corps, when on the active list, should be accorded the right to retirement on account of age or disability, as in the case of other officers, including dental surgeons, chaplains, veterinarians and pay-clerks; and credit for former services as acting assistant surgeon and contract surgeon in computing increased service pay, the same as is now authorized by law for the dental surgeons.

The following form of a bill should, it is thought, meet the approval of all medical reserve corps officers, whether or not on the active list, as being a fair and justifiable request for the necessary legislation, to place the M. R. C. officer on equality with the dental surgeon.

A BILL TO PROVIDE FOR THE RETIREMENT AND LONGEVITY PAY FOR CERTAIN MEDICAL OFFICERS OF THE U. S. ARMY

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That hereafter officers of the Medical Reserve Corps, U. S. Army, on the active list, shall have the right to retirement for age or disability as in the case of other officers.

Sec. 2. That former service as acting assistant surgeon or contract surgeon shall be reckoned in computing the increased service pay of officers on the active list of the Medical Reserve Corps of the Army.

Sec. 3. That all acts or parts of acts in conflict with the provisions of this act are hereby repealed,

F. M. Wall, M.D., Fort Lawton, Wash.

Housing and Sanitation

To the Editor:—Permit me as a member of the American Public Health Association to congratulate you on the editorial which appeared in The Journal, May 9, 1914, p. 1479, on this subject. As the medical adviser of the Canadian Commission of Conservation, I believe most fully in the importance of public health work being carried into the homes of our people. We as sanitarians have been devoting too much work to "the outside of the platter" and must get busy on the inside. Both fields must be worked but the inside of the home is as an untrodden field. It is, however, the one in which our best work can and should be done.

We have pushed forward medical inspection of schoolchildren, which in the main simply is curative of the ills consequent on the neglect by health authorities of home sanitation in its widest sphere. I am convinced that if health authorities would but enter into this domain, the result would be that the cost of school inspection would be minimized and healthier children would be sent to our schools when the age of tuition begins. This is the proper kind of medical inspection of children.

From a public health point of view, such factors as race influence, eugenics, occupation, poverty, high cost of living and many others have to be considered; but the health of the home and all that it means for life and death is an outstanding factor which seems to have been lost sight of because it has been neglected.

Charles A. Hodgetts, M.D., Ottawa, Canada.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

RECIPROCAL RELATIONS OF PENNSYLVANIA

To the Editor:—With what states does Pennsylvania have reciproca relations? C. L. N.

ANSWER.—Arkansas, California, Colorado, Delaware, District of Columbia, Georgia, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Vermont, Virginia, West Virginia, Wisconsin and Wyoming.

MASTITIS IN MUMPS—INFLUENCE OF DRUGS ON THE MAMMARY GLANDS

To the Editor:—If mastitis develops as a complication of mumps, does it usually impair the function of the glands later?

2. If so, what is the best treatment?

3. What preparations or measures will stimulate the glandular activity of the mammary glands?

C. B. CREECH, M.D., Middleburg, Ky.

ANSWER.—1. No. We find no reference to such effects and conclude that they must be unknown or extremely rare.

2. Ordinarily symptomatic treatment for ordinary mastitis.

3. It is doubtful whether any drugs have an influence on the mammary glands. The extract of the pituitary gland has been recommended as a stimulant to the secretion of milk, but the evidence as to this is not conclusive.

THE PLACENTIN SKIN REACTION IN PREGNANCY

To the Editor:—Can you give me the technic for Engelhorn and Wintz's skin reaction in pregnancy as abstracted in THE JOURNAL, May 9, 1914, p. 1514? The method of preparation of placentin is particularly wished. KENNETH M. LYNCH, M.D., Charleston, S. C.

ANSWER.—The method of preparation of placentin is not given in the paper abstracted, which is the only publication on this subject. The authors assert that they wish to perfect the method before giving a complete description. Inoculation is made in the same way as is the tuberculin reaction of von Pirquet, and the reaction is most completely developed by thirty-six hours after the inoculation. It consists of inflammatory swelling and reddening with a light-brown discoloration of the surrounding skin.

BOOKS ON HYGIENE AND SANITATION

To the Editor:—Can you recommend a good practical book on hygiene and sanitation that would cover the duties of a medical officer in a semi-tropical town of 15,000 population?

CHARLES HARDWICKE, M.D., Hospital "El Aguila," Minatitlan, V. C., Mexico.

ANSWER.—Harrington's "Practical Hygiene," published by Lea & Febiger, Philadelphia, price $4.50, and Rosenau's "Preventive Medicine and Hygiene," published by D. Appleton & Co., New York, price $6, are excellent works. Readers of German may consult R. V. L. Abel's "Handbuch der Praktischen Hygiene," published by G. Fischer, Jena, 1913, two volumes.

DOSAGE OF TYPHOID VACCINE FOR CHILDREN

To the Editor:—Please give me the accepted dose of typhoid vaccine for children. C. A. SHORE, M.D., Raleigh, N. C.

ANSWER.—The dosage of typhoid vaccine for children is given by Frederick F. Russell in THE JOURNAL, Feb. 1, 1913, page 344, as follows:

"The dosage is based altogether on body-weight and not on age. The child is given that portion of the adult dose which his weight bears to the average adult weight, 150 pounds. If the fraction proves inconvenient, a little more, rather than less, is administered. As with adults, the best time for inoculation is 4 o'clock, or later, in the afternoon, since any reaction will then come after bedtime."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, June 3. Sec., Dr. C. T. Nolan, Marietta.

IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 3-5. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 4-6. Sec., Dr. E. L. Leckert, Macheca Bldg., New Orleans.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 2-5. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

MONTANA: Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEBRASKA: Lincoln, May 27. Sec., Dr. H. B. Cummins, Seward.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

OHIO: Columbus, June 2-5. Sec., Dr. George H. Matson, State House, Columbus.

PENNSYLVANIA: Philadelphia, June 1-3. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

Wisconsin Reciprocity Report

Dr. John M. Beffel, secretary of the Wisconsin State Board of Medical Examiners, reports that 51 candidates were licensed through reciprocity from June 24 to Oct. 1, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1910)	Oklahoma
Bennett Medical College (1911) Illinois; (1912) Illinois; (1912) Illinois; (1912) Illinois.		
Chicago Coll. of Med. and Surg.	(1912)	Illinois
Chicago College of Phys. and Surgs (1902) Illinois; (1910) Illinois; (1910) Illinois; (1911) Illinois.		
Hahnemann Med. Coll. and Hosp. of Chicago (1908) Illinois; (1910) Illinois; (1912) Illinois.		
Northwestern Univ. Med. School (1904) Illinois; (1905) Illinois; (1907) Illinois; (1912) Illinois.		
Rush Medical College (1885) Minnesota; (1898) Minnesota; (1908) Illinois; (1909) Illinois; (1910) Minnesota; (1912) Illinois.		
University of Illinois	(1907)	Illinois
Indiana University	(1911)	Indiana
Louisville Medical College	(1907)	Kentucky
University of Louisville	(1900)	Kentucky
Johns Hopkins University	(1905)	Maryland
University of Maryland	(1906)	Maryland; (1906) Connecticut
Tufts College Medical School	(1908)	Ohio
Detroit College of Medicine	(1893)	Michigan
University of Michigan, Dept. of M. & S. (1909) Michigan; (1909) Michigan; (1912) Michigan.		
Hamline University	(1901)	Minnesota; (1901) Minnesota
University of Minnesota	(1892)	Minnesota; (1904) Minnesota
Barnes Medical College	(1897)	Colorado
St. Louis Coll. of P. & S.	(1902)	Missouri; (1909) Arkansas
Columbia University, College of P. and S.	(1878)	Minnesota
Miami Medical College	(1901)	Illinois
University of Pennsylvania (1895) Pennsylvania; (1895) Pennsylvania; (1899) Pennsylvania.		
Woman's Medical College of Pennsylvania	(1909)	Penna.
Meharry Medical College	(1910)	Tennessee
Marquette University	(1911)	Wyoming

Book Notices

Communicable Diseases: An Analysis of the Laws and Regulations for the Control Thereof in Force in the United States. By J. W. Kerr, Assistant Surgeon-General, and A. A. Moll. Paper. Price, 50 cents. Pp. 699. Public Health Bulletin No. 62. Washington: Government Printing Office, 1914.

This is a compilation and analysis of federal and state laws and health board regulations of the United States concerning communicable diseases. The report says that, using the United States census figures as a basis, it may be estimated conservatively that at least 25 per cent. of the deaths in this country are due to communicable diseases. This means 300,000 deaths and over 3,000,000 cases. The importance of having proper laws and regulations, efficiently enforced, for preventing to the greatest possible extent these diseases is therefore apparent. The report is highly valuable as showing what has already been accomplished by the national and state governments in providing these laws and also the need for further legislation, for uniformity and for enacting into laws many measures for disease prevention which are now only the regulations of health boards. It is said that while in many states authority is conferred on state boards of health to establish regulations for disease prevention, yet it is undeniable that there are advantages in having the sanitary policy of a state expressed in unmistakable form by the legislature. Although health board regulations may represent the best sanitary principles, they embody knowledge not common to the general mass of the people, while the acts of the legislature are adopted after more or less general discussion by the public and are, therefore, more popularly understood. The *Bulletin* contains a brief analysis of federal laws with regard to quarantine and the management of communicable diseases and then analyzes the laws of the various states with reference to each contagious or infectious disease, showing what states have laws covering these diseases and what the laws actually mean. Following this there is an appendix containing court decisions concerning the enforcement of health regulations and laws, and extracts bearing on communicable diseases from the laws of the various states and the national government. A study of the *Bulletin* by the various state authorities would reveal their own shortcomings and assist them in efforts to secure better and more uniform regulations, better organizations for their enforcement and for cooperation with the health authorities of other states. Efficient disease prevention largely depends on such cooperation.

It is a great convenience to have this material brought together into one volume and Public Health Bulletin 62 is, therefore, a most valuable publication. It may be procured from the superintendent of documents at the government printing office, Washington, D. C., at 50 cents per copy.

Pathogenic Micro-Organisms. A Text-Book of Microbiology for Physicians and Students of Medicine. (Based on Williams' Bacteriology.) By Ward J. MacNeal, Ph.D., M.D., Professor of Pathology and Bacteriology in the New York Post-Graduate Medical School. Cloth. Price, $2.25. Pp. 462, with 213 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This work is brought out as a successor to the well-known book of Williams. The arrangement has been changed, most of the text rewritten, and molds, bacteria, protozoa and filterable viruses are included. The work is divided into three sections, on bacteriologic technic, general biology of pathogenic micro-organisms, and specific micro-organisms. The descriptions are clear and the book is amply illustrated. The relations of bacteria to disease, and the theories of immunity and pathogenic action are thoroughly considered. The manual ought to be of service to practical physicians wishing to review the subject as well as to students. That it has been brought quite up to date is shown by the inclusion of the latest communications of Flexner and Noguchi on the virus of epidemic poliomyelitis.

Miscellany

Experience of United States Medical Officer with Mexican Wounded

Although war has not been declared between the United States and Mexico, and no fighting has taken place between the troops of the two nations except at Vera Cruz, some United States Medical Corps men have had experience in taking care of the wounded Mexican soldiers of both sides as the result of battles along the border. Captain Louis C. Duncan of the Medical Corps, U. S. Army, in the *Military Surgeon,* gives a graphic account of his experience in taking care of the wounded of both sides at the battle of Ojinaga, a town on the Rio Grande opposite Presidio, Tex. Between three and five thousand men on each side were engaged in this battle, and there were about fifteen hundred camp-followers, including men, women and children, many of whom were wounded or sick and had to be given attention. The medical organizations of the Federals was not adequate, the rebels perhaps having the better. The Red Cross organization was early on the ground at Presidio with a small force, and the United States forces furnished a few men in charge of Captain Duncan. With the meager facilities at hand on the part of both, and with much hurried and strenuous work, those needing attention were cared for. The wounds were of all sorts. Out of 200, 25 per cent. were serious, involving gunshot wounds of the head and face, perforations of chest and abdomen and fractures of the femur and other long bones, as well as spinal injuries. Of these the wounds of the spine, of the femur and of the cranium in the order named were regarded as most serious, considering the facilities for handling them. Wounds of the chest were not regarded as particularly serious, and perforating wounds of the abdomen were all treated on the expectant plan and did astonishingly well. Serious hemorrhage was rare in any case. From his experience Captain Duncan draws the following conclusions with reference to the handling of the wounded in battle:

1. No case is non-transportable — as far as a field-hospital.
2. Hemorrhage seldom has to be treated at dressing-station or field-hospital.
3. A white tent, sheltering from thirty to forty-five wounded, is far preferable to our present dark, heavy, cumbersome hospital tent. A tent weighing 600 pounds will take the place of five hospital tents weighing 1,200 pounds, and be far more convenient.
4. Tincture of iodin, dressings, soap, some antiseptic, like compound solution of cresol, a few splints and a pocket-case are all the things needed for 99 per cent. of the wounded in the field.
5. A dressing-station for slightly wounded is entirely unnecessary. The regimental aid stations should dress all these men and send them back to the firing-line. A separate divisional station divides the personnel and confuses the wounded.
6. Gunshot wounds of the spine are the most difficult of all cases to care for and the most fatal.
7. Perforating wounds of the cranium are very serious, require much care and in nearly 50 per cent. of cases result in death.
8. Perforating wounds of the thorax by small-caliber bullets are not usually serious. They are generally easy to handle and about 90 per cent. of them will end in recovery.
9. Perforating wounds of the abdomen are not so fatal as has been believed. With the minute modern missile, nearly always at long range, the abdomen is often perforated without serious damage. These cases require little attention and 50 per cent. of the patients will recover — if not meddled with.
10. Fractures of the femur are very difficult to treat in the field. Many will become infected and the ultimate results will be bad. They should not be treated in the field but should be removed early before the bone begins to unite. Wounds of the knee are also serious. Fractures of the bones of the leg give little trouble.

11. Wounds of the upper extremities are usually unimportant. The patients walk about and take care of themselves; even assist in caring for others. This is a very important item in the field. One wound of the spine, or fracture of the femur, makes more work than twenty of the arm.

12. The keeping of records in a field-hospital, with wounded coming by the ten or twenty, and at all hours, is a very difficult matter.

13. The organization of a field-hospital into wards, etc., with responsible surgeons and nurses, is absolutely necessary to good work.

14. An army wagon will carry as many patients as an ambulance, and, if properly bedded, with as much comfort; but litters cannot be used and the loading and unloading are very difficult. For all patients able to sit up they are superior to ambulances.

Schedule for Health Survey

W. H. Deadrick, in the *American Journal of Tropical Diseases and Preventive Medicine*, March, 1914, says that the most significant evidence of the results of the modern municipal efficiency movement is the wide-spread consideration of health matters. Public health departments are deservedly being investigated with a view to improvement through constructive criticism. Cities formerly advertising low tax-rates, good railroad facilities and other trade-inducing advantages now call attention to low death- and morbidity-rates, child-welfare and other health functions as commercial assets. Popular ignorance of sanitary principles is still one of the most serious impediments to sanitary progress, and publicity is the remedy. The health survey is the gateway to this publicity, and many cities are having sanitary surveys made. Deadrick has constructed a scheme for such a survey which he believes should prove useful in cities in which an expert is not employed. Such a survey should be under the following heads: organization of the health department; contagious and communicable diseases; tuberculosis; sanitary inspections; street-cleaning; food inspections; meat inspection; water-supply; sewerage and sewage disposal; housing conditions; child welfare; medical inspection of schools; hospitals and clinics; laboratories; vital statistics; death, birth and marriage records and health education, etc. Information collected under each of these departments of municipal health housekeeping should afford a thorough survey of conditions and a basis for improvement.

Intradermal Test for Tuberculosis in Cattle and Hogs

In Bulletin 243 of the University of California, Haring and Bell consider the intradermal method of tuberculin testing of cattle which is said to have many advantages over the usual method. The reaction depends on a swelling at the point of injection and not on a rise of temperature, though the rise may take place at the same time as the swelling, modified, however, by unusual surroundings, such as very hot weather, fatigue from a long journey, etc. The test can be successfully applied to young calves and range cattle, and during the hot season in the interior valleys under conditions that would render the subcutaneous method unsatisfactory. In applying 4,926 intradermal tests and retests to 4,001 head of cattle, 1,614 of which reacted, and checking the results by 1,000 subcutaneous tests and 341 necropsies, Haring and Bell conclude that under average dairy conditions the intradermal test equals the subcutaneous method in accuracy provided a 5 per cent. or stronger solution of alcoholic precipitated tuberculin is used, and the test is performed by an experienced operator. Since none of the tests will detect all the cases of tuberculosis, the combined intradermal and subcutaneous or ophthalmic test is recommended. The intradermal test is especially adapted to the testing of swine. In applying the test it is preferable to use a short needle, not over ¼ inch in length, and in cattle the injection should be made in the fold at the root of the tail. The size of the swelling produced indicates the extent of the reaction.

Medicolegal

Responsibility for Malpractice of Partners and Substitutes

(*Lee vs. Moore* (*Tex.*), *162 S. W. R. 437*)

The Court of Civil Appeals of Texas in reversing a judgment obtained by the defendant and ordering a new trial, says that if a physician makes provision for the attendance of a competent physician on his patient, he may leave temporarily, but for the unwarranted abandonment of a case at a critical period resulting in increased pain and suffering on the part of the patient, he will be held liable in damages. In this case the question was as to the liability of a physician for the malpractice of a substitute furnished by him.

The plaintiff had arranged with the defendant to attend his wife in childbirth. One night the defendant was summoned, pronounced the pains false, and went home. When called again next morning by telephone, he replied that he could not come, but would send another physician, a Dr. Hardin. The court is of the opinion that, even though it should be conceded that common carriers in furnishing a physician to treat injured passengers, etc., and persons rendering gratuitous services in employing a physician to attend on a sick or injured person are only required to exercise ordinary care to select a skilful and competent physician, yet, under the facts of this case, the duty of the defendant to furnish the plaintiff a physician to attend on his wife possessing that degree of knowledge, skill, and care which physicians practicing in that city and vicinity possessed, was absolute. If it could be said that Dr. Hardin was not an assistant of the defendant in the treatment of the plaintiff's wife, and was not a general partner of the defendant in the practice of medicine, yet that he was a special partner in the treatment of the case, or was acting under his employment to do so, could not very well be gainsaid. At any rate, the defendant, being a physician himself, and having by contract undertaken the treatment of Mrs. Lee, and having secured the services of Dr. Hardin to relieve himself of the necessity of attending her himself and to serve his own interests, the defendant would not be allowed to say that, in such case, the duty resting on him in the selection of a substitute physician was simply that of ordinary care.

Whether the plaintiff was under the influence of intoxicating liquors and exhibited a pistol in such a threatening manner towards Dr. Hardin while he was waiting on the plaintiff's wife as to alarm or excite Dr. Hardin to such an extent as that the same contributed to the failure, if any, of the physician to use ordinary care and skill in the treatment of the plaintiff's wife, was an issue made by the evidence, which should have been submitted to the jury for their determination, with instructions that an affirmative finding on it would entitle the defendant to a verdict in his favor.

Preliminary Proof Required for Roentgenograms

(*Ligon vs. Allen* (*Ky.*), *162 S. W. R. 536*)

The Court of Appeals of Kentucky reverses a judgment for alleged malpractice in the treatment of a fractured humerus because of error in the admission of certain roentgenograms when the necessary preliminary requirements had not been established. The court says that the witness merely stated that he took the photographs. He did not state that they correctly represented what he saw, or how they were taken, or that he had ever taken a roentgenogram before, or knew anything about how they ought to be taken. No assurance was given as to the character or accuracy of the Roentgen-ray machine, or its condition or working order. While it may not be necessary to establish all of these facts in order to make roentgenograms admissible in evidence, the accuracy of the photographs must be established, for, if they do not show what the witness saw, they have no place in the case. The rule is recognized by all the authorities that when the witness fails to make a roentgenogram admissible by testifying to its accuracy, it is not admissible and should be rejected.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Laryngological Association, Atlantic City, May 25-27.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Medico-Psychological Association, Baltimore, May 26-29.
American Orthopedic Association, Philadelphia, June 18-20.
American Otological Association, Atlantic City, May 27-28.
American Pediatric Society, New London, Conn., May 26.
American Proctologic Society, Atlantic City, June 22-23.
American Society of Tropical Medicine, Boston, May 29-30.
American Therapeutic Society, Albany, May 29-30.
American Urological Association, Philadelphia, June 18-20.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
National Association for the Study of Epilepsy, Baltimore, May 25.
New Jersey Medical Society, Spring Lake, June 29.
North Carolina Medical Society, Raleigh, June 16.
Rhode Island Medical Society, Providence, June 4.
South Dakota State Medical Association, Watertown, May 26-28.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Forty-Seventh Annual Meeting, held at Columbus, April 14-16, 1914

The President, DR. L. C. FEEMSTER of Tupelo, in the Chair

Acute and Chronic Arthritis

DR. JOHN B. ELLIOTT, JR., New Orleans: I have found the classification of Barker of great value in the differential diagnosis of the arthritides. Briefly, it is as follows: (*a*) Arthritis of the severe nervous diseases. (*b*) Arthritis due to gout. (*c*) Arthritis Deformans. (*d*) Arthritis due to infections. (*e*) Chronic primary progressive arthritis (rheumatoid arthritis).

DISCUSSION

DR. J. S. ULLMAN, Natchez: Acute rheumatic fever is something we hear a great deal about but rarely see. I think a great many cases spoken of as acute rheumatism or chronic rheumatism, are simply the manifestations of trouble in some other part of the body.

Diagnosis of Early Pulmonary Tuberculosis

DR. C. H. COCKE, Asheville, N. C.: The means of diagnosis are within the reach of all. We should treat each suspect as though he were tuberculous until we have proved the contrary. Physical examination is all-important. The von Pirquet test is of no great value after the second year of life, unless it be negative.

DISCUSSION

DR. A. J. WILLIAMS, Gulfport: For the past few years, physicians living in the small towns have been in the habit of relying on microscopic examination in order to make a diagnosis. I have often had patients go to another doctor, who would tell them that they did not have tuberculosis. Had the other doctors stripped these patients, I am sure they would not have differed with me.

Public Health or Preventive Medicine

DR. J. H. PORTWOOD, Kosciusko: Physicians should all serve as the advance-guard of the sanitary army. They should preach the prophylaxis of tuberculosis, typhoid and malaria. They should teach that there is a real danger in measles and that not every patient recovers. They should encourage a general campaign for sexual purity and teach the possibility of physiologic continence.

DISCUSSION

DR. W. S. LEATHERS, University: I want to emphasize the paramount importance of proper sewage disposal at the country house. A great deal has been said this afternoon with regard to the prevention of different diseases, typhoid, tuberculosis, etc., and yet we find out in the country that over 50 per cent. of the homes have no proper provision for disposing of the waste from the home. In many counties, over 40 per cent. of the schools have no conveniences.

Technic for Operation for Ovarian Cysts

DR. F. D. SMYTHE, Memphis, Tenn.: The incision should be a long one. In cases in which the cyst is very large, the patient weak and anemic, with embarrassed respiration and heart action, the operation should be done in two steps: the abdomen should be incised down to the tumor and gauze inserted between the tumor and parietal peritoneum to produce union of surfaces; the cyst may be evacuated a few days later.

DISCUSSION

DR. J. C. CULLEY, Oxford: There is one thing which I always advise a beginner to do and that is to make a long incision, because you can see better how to remove the cyst without fear of doing damage. Sometimes the peritoneum is adherent to the cyst, and if you are not careful you will go right on into the peritoneum and are apt to have a recurrence. The removal of the cyst is better accomplished by the use of the trocar, and that very slowly. Also, in removal of the cyst intact, the fluid often slips back into the abdominal cavity, and that should be protected with gauze.

Pellagra a Curable Disease

DR. M. O. SHIVERS, Colorado Springs, Colo.: Put the patient to bed in a cool, dark room. Diet, climate and arsenic (hypodermatically or intravenously) are our weapons. Remember that the pellagrin, no matter how slight the attack, is seriously ill.

DISCUSSION

DR. W. L. LITTLE, Wesson: Last summer I treated about fifteen cases. I used sodium cacodylate. Not a patient died.

DR. A. J. CARTER, Ellisville: When shall we be able to say that the patient is cured?

DR. M. O. SHIVERS, Colorado Springs, Colo.: My first patients were treated three years ago. So far, out of this first series, I have had no recurrences. They were of the bad class—persons that were vomiting, and had mental symptoms.

Diseases Transmitted by Milk and Milk Products

DR. W. H. ROWAN, Jackson: Milk may be a source of disease by carrying it from cow to man or from man to man, or it may act as a factor because of a diminution or an increase in its inherent qualities. A large percentage of Mississippi dairy cows are tuberculous. When cows respond to the tuberculin test, 41 per cent. will show the bacilli in the milk. Typhoid and scarlet fever and diphtheria are transmitted by milk. Our fly-infested towns, with their notorious disregard of the sanitary privy, are in a bad way. The amount of human excreta drunk and eaten in the average Mississippi town is amazing.

DISCUSSION

DR. D. M. MALLOY, Sulligent, Ala.: Dr. Rowan has stated that bovine tuberculosis can be transmitted from cow to man. This is proved particularly in the Philippine Islands, where the milk-supply is derived almost entirely from the carabao, the water-buffalo. Tuberculosis is almost unknown among these animals. The only cow's milk which reaches the Philippines is the condensed milk which is sterilized and contains no organisms. The fact that the carabao is not susceptible to tuberculosis, the fact that bone tuberculosis is due almost entirely to bovine infection, and the further fact that bone tuberculosis is unknown in the Philippines, would seem to establish that it is transmitted in the milk-supply from cow to man.

Tumors of the Breast

DR. W. G. GILL, Newton: All tumors of the breast are suspicious and should be treated as cancerous until a competent pathologist has pronounced them benign. The best procedure is to remove them and send them to a pathologist; then it does not make any difference in the prognosis what sort of a report he sends you.

DISCUSSION

DR. M. O. SHIVERS, Colorado Springs, Colo.: It is a mistake to remove any tumor and send it to a pathologist. Statistics have shown that in cases in which the tumor was taken out and the breast left four or five days to be removed, the secondary operation is of no value—that few of these women live; so few that it seems absolutely unnecessary to go back after a pathologist has stated that it is carcinoma. So, if there is anything in a woman's breast to require operation at all, that breast should be removed.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Eighth Annual Meeting, held in New York City, April 28-30, 1914

The President, DR. WILLIAM FRANCIS CAMPBELL, Brooklyn, in the Chair

Officers Elected

The following officers were elected: President, Dr. Grover Wende, Buffalo, N. Y.; vice-presidents, Dr. Myron B. Palmer, Rochester; Dr. S. W. S. Toms, Nyack, and Dr. Robert M. Elliott, Willard; secretary, Dr. Wisner R. Townsend, New York, reelected; treasurer, Dr. Alexander Lambert, New York, reelected.

Next place of meeting, Buffalo, April 27, 28 and 29, 1915.

DR. WISNER R. TOWNSEND, the secretary, recommended that the delegates to the American Medical Association be requested to favor the passage of a resolution calling on the Trustees to pay the traveling expenses of the delegates to the meetings of the American Medical Association.

Oration on Surgery: Kinetic Chain for Transformation of Latent Energy

DR. GEORGE W. CRILE, Cleveland, Ohio: If our conclusions are sound, then in the kinetic system we should find an explanation of many diseases, and having found an explanation we may find new methods of combating disease. The organs of the kinetic system are the brain, adrenals, liver, muscles and thyroid. Energy is appropriated by the body from the physical forces of nature that constitute the environment, and this energy is stored in the body in quantities in excess of the need of the moment. It is the function of the organs of the kinetic system to transform the surplus so stored into action and heat as needed. This mechanism of organs produces fever as well as muscular activity, fever being heat generated to combat disease.

Deficiency in one of the organs of the kinetic chain causes alike loss of heat, loss of muscular and emotional action, of mental power, and of the power of combating infection. From this we are able to understand the muscular weakness following fever; we can understand why the senile have neither muscular power nor strong feverish reaction; why long-continued infections produce pathologic changes in the organs constituting the kinetic system. Physical or mental shock caused by pain, fear, rage or exercise causes an impairment of the kinetic system because shock means the transformation of potential energy into heat or action. It is desirable, therefore, that unnecessary or too severe shocks be avoided, and the first step in the avoidance of shocks has been made possible by the knowledge of the kinetic system.

Exophthalmic Goiter and Its Treatment

DR. JOHN ROGERS, New York: The first stage is simple hypertrophy; the second stage is that of more or less hypothyroidism; the third stage is that of hyperthyroidism. After hyperthyroidism comes exophthalmic goiter. If the disease lasts long enough the exophthalmic goiter is followed by a fifth stage, a myxedematous condition. The irregular types of exophthalmic goiter can be grouped into different stages which are prolonged in a given case. As to the prognosis in exophthalmic goiter, over 80 per cent. of deaths occur in the exophthalmic stage rather than in the stage of hyperthyroidism. The apparent cause of thyroid abnormalities is fatigue, a simple hypertrophy which is so common, with multiplication of glandular elements in response to demands put on the thyroid which are greater than the normal organ can supply. The antithyroid serum seems to be the best conservative medical treatment. It should not be preserved in except for a short time. The "hyper" cases can be cured much better by ligation of the vessels. I ligate all four of the thyroid arteries and tie off the tip of each upper pole.

DISCUSSION

DR. MARTIN B. TINKER, Ithaca: The diseased condition is limited chiefly to the thyroid in the early stages of the disease. In many cases physicians allow patients to go on with thyroid trouble until they get a dilated heart or are on the verge of insanity, until they have cirrhotic changes in the kidney and liver and other secondary results, and they are confused by the secondary conditions which arise as the result of the thyroid poisoning. If the disease were recognized early many lives might be saved. I have urged on many occasions that the treatment of hyperthyroidism should be undertaken early before serious trouble has occurred in other parts of the body. Within a year two patients came to me who have since gone to insane asylums. Whether or not the insanity could have been prevented in the early stages if treatment had been undertaken, no one can tell, but there is good reason to believe that if patients were taken early enough they might be saved many of the results which occur later.

DR. T. B. BARRINGER, New York: I generally find in these cases that there has been a history of overwork. In 195 cases the history of overwork has doubled a history of fright in those sudden cases that have developed within a few weeks or a few months. These patients faint without the slightest provocation. In this group there have been various disorders of menstruation, such as delayed menstruation and too frequent menstruation; sometimes profuse menstruation has been complained of more than amenorrhea. A large percentage of this group have had the infectious diseases. A proportion of them have had adenoids and enlarged tonsils, and appendicitis. A high percentage of them are anemic. The early cases can be cured by prescribing prolonged rest.

Value of the Various Tests for Determining Functional Activity of Kidney

DR. JAMES N. VANDER VEER, Albany: The so-called phlorizin test is too sensitive. Phlorizin indicates the amount of kidney parenchyma which is capable of functionating. As to the methylene-blue test, only 50 per cent. of the drug is excreted, and it appears as chromogen in the urine, requiring the use of acetic acid and boiling to demonstrate it at this time. This test is too prolonged to be used advantageously. Letters received from 150 surgeons show that from 60 to 70 per cent. use the phenolsulphonephthalein test when they operate on patients. Others use various tests. No more striking evidence of the keen desire for increased accuracy in diagnosis and prognosis in surgical work is to be found than in the persistent and laborious attempts made in order to arrive at a trustworthy method of estimating the functional value of the kidney. Failure of renal function is responsible for a certain proportion of the death-rate.

DISCUSSION

DR. M. W. WARE, New York: The statistics of Young and Freyer when there were no functional tests of the urinary tract were just as good then as now. I recall years ago when Young reported 100 prostatectomies with no deaths, and he did not make use of functional tests.

DR. GIBBONS, New York: I have operated in a great many cases of cancer of the breast without making use of functional tests of the kidney, and none of the patients died on the table or as the result of the operation; but I packed all around the chest with hot towels. It is a matter of having sense not to operate on dying patients. A friend of mine used to say that if the pathologist said cancer, the patient would live; if he said the disease was not malignant the patient would die.

Dr. Paul Pilcher, Brooklyn: I believe in the value of the phenolsulphonephthalein test. During the past year or so we have lost patients by operating when it seemed to us that if we had been warned beforehand that there was something wrong with the kidneys, we might not have operated, or if we had waited and prepared the patients properly, and operated some time later, life might have been saved. Many a patient will be saved by our knowing which of the kidneys is doing the better work.

Dr. Edwin Beer, New York: I agree with Dr. Vander Veer and Dr. Pilcher that functional tests, properly interpreted, will save a great many lives. I am convinced that practically all these tests have their indications and are of value, and by carrying them out we shall prevent a great many deaths which would otherwise follow operations.

Transfusion of Blood, Direct and Indirect

Dr. John A. Hartwell, New York: In hemorrhage transfusion is of value, provided it is done properly. Transfusion in cases of ectopic gestation in which rupture has occurred, in gastroduodenal ulcers and in typhoid is indicated and is valuable. I encourage transfusion in the more advanced cases of splenic anemia, pernicious anemia and the severe grades of anemia of unknown origin. Transfusion as a therapeutic agent in pernicious anemia has been of only temporary value. Transfusion is a valuable aid in the treatment of septic conditions, although the results reported by some have been disappointing.

DISCUSSION

Dr. George W. Crile, Cleveland: Dr. Hartwell did not refer to transfusion of blood in acute surgical shock, or in those patients on whom, through emergency, it is necessary to perform a major operation. There is no question whatever but that in acute surgical shock direct transfusion of blood has given the greatest amount of relief and will revive a patient better than any other method. I have used it many times in acute traumatic cases.

Dr. David J. Kaliski, New York: It has been our practice to make preliminary blood-tests in all cases before transfusion, and by this means we have been able to rule out all accidents during transfusion which might occur from hemolysis, from agglutination or from both. A Wassermann test is made in every case to rule out syphilis.

Dr. Robert H. M. Dawbarn, New York: I have recently obtained remarkable results in this class of cases by the addition of large doses of ergot to the saline solution. There is not a single case on record of death from an overdose of ergot, and it has been given in large doses in cases of congestive headaches. The dose is half an ounce of ergotol with from about 1,800 to 2,000 c.c. of normal saline.

(To be continued)

LOUISIANA STATE MEDICAL SOCIETY

Thirty-Fifth Annual Meeting, held at New Orleans, April 20-23, 1914

The President, Dr. Fred J. Mayer, Opelousas, in the Chair

Diseases of Aorta, with Special Reference to Aneurysm

Dr. George S. Bel, New Orleans: Almost all aneurysms of the aorta are the result of syphilis. The lesion is primarily in the outer muscular wall and consists of a gummatoid infarction. We do not know what percentage of patients who have syphilis develop syphilitic aortitis, but undoubtedly it is quite common and frequently unrecognized, as shown by necropsy. The essential signs and symptoms of syphilitic aortitis are precordial pain, paroxysmal dyspnea, tachycardia, increased pulsations of vessels of neck, dilatation of aorta and positive Wassermann. It is important to treat all cases early and properly in order to avoid the formation of aneurysm. Weeks and often months precede the actual aneurysmal formation after the syphilitic aortitis began, which, in most of the cases, affords an opportunity for the clinician to recognize the specificity of the aortic disease, and thereby anticipate the formation of aneurysm by instituting syphilitic treatment.

DISCUSSION

Dr. J. B. Guthrie, New Orleans: Without careful percussion of the base of the heart in the first interspace, the practitioner is going to fail to diagnose aneurysm. I cannot agree that percussion is the most valuable of all means of physical examination. The importance of percussing the base of the heart in the region of the manubrium sternum cannot be emphasized too much from a diagnostic point of view. We must institute treatment, if possible, in the prophylactic stage. When a certain amount of aortitis exists, with manifest arteriosclerosis in the peripheral arteries, we are not doing our duty to these patients unless we investigate them fully from the point of view of syphilitic disease.

Dr. Adolph Henriques, New Orleans: Undoubtedly we get more information with the Roentgen ray than by any other single means, but in order to secure this information we have to make a proper examination with the fluoroscope and from several directions, front, back, side and the oblique position. If this is done with a knowledge of what constitutes the normal appearance of the aorta, we can recognize 90 per cent. of aneurysms.

Cerebrospinal Meningitis

Dr. Randolph Lyons, New Orleans: In my twenty-two cases there were eleven deaths. One of the fatal cases did not receive any serum, and hence it is omitted. The mortality for the twenty-one cases treated with serum was 47.6 per cent. If three patients who were practically moribund and died in less than forty hours are excluded, the death-rate may be reduced to 38.8 per cent. Of the remaining seven fatal cases, two had complicating pneumonias, and a third acute nephritis. Five of the patients died of uncomplicated meningitis. Unfortunately no post-mortems were obtainable. In the eleven fatal cases, nine patients died in the first week of admission. Even barring the moribund cases, a mortality-rate of 38 per cent. may be considered rather high under serum therapy. The disease, however, was in many of the cases unusually severe. Another factor which may play a part in the mortality-rate is race. Statistics gathered from the recent epidemics in the South and Southwest have uniformly shown a higher death-rate in the negroes than in the whites, though both races had the benefit of the serum. Galveston was the only exception to this rule. This apparent lessened resistance to the disease among negroes may be due less to radical qualities than to insanitary living and ignorance. The negro usually waits until the disease is well advanced before coming to a hospital. Of the eleven patients who recovered, only two showed any after-effects of the disease. One patient was totally deaf and the other partially deaf.

DISCUSSION

Dr. M. L. Graves, Galveston: The mortality mentioned by Dr. Lyons is entirely too high and must be explained on the ground that the patients received the serum treatment either after the disease had progressed too far or other conditions were present that I am unable to account for. The reduction of mortality by the prompt, efficient and repeated serum therapy is very great.

Dr. M. J. Carouse, Point Coupee: I would like to ask the author what he considers a large dose of the meningococcic serum injected into a child or an adult.

Dr. Randolph Lyons, New Orleans: In my series of cases we had to deal with adults. I consider large doses of the serum anything over 40 c.c., but it depends on the amount of spinal fluid withdrawn.

Pellagra and Its Treatment

Dr. E. H. Martin, Hot Springs, Ark.: In the large majority of cases the salvarsan treatment of pellagra leads to an uninterrupted recovery without unpleasant symptoms. In some cases the intense pains in the lower extremities, and occasionally in the arms, may be very persistent, and such neuritis may continue for a time after the treatment has

been completed. This is strictly a pellagrous symptom, as it does not occur in cases of cerebrospinal lues similarly treated. A few cases will be met in which the infection is so intense, although the symptoms may not be correspondingly severe, that little impression seems to be made and the patient finally dies of the disease. If specific treatment is used in all cases you may confidently expect to cure permanently over 80 per cent.

Fisher's Alkaline-Saline Therapy

DR. J. T. HALSEY, New Orleans: Many cases of general edema and of nephritis are not benefited by this alkaline-saline therapy, and a certain proportion of such cases will be unfavorably influenced by it. In spite of my own lack of success in applying this treatment in one case, I shall continue to try it out cautiously but fairly. It should be tried in cases of general edema or nephritis which do not respond to our usual methods of treatment.

Institutional Treatment of Nervous and Mental Diseases

DR. CHARLES V. UNSWORTH, New Orleans: Of paramount importance in institutional treatment is the educational, industrial and moral training. Industrial training should be directed toward encouraging contentment and industry by occupations suitably selected according to individual tastes. Patients should be assisted to lead well-regulated lives, in order that they may be led to forget the irksomeness of confinement, and helped to believe that they are taking some part in the work of the world. In the Louisiana Retreat the results secured from industrial training have been most gratifying.

Summary of Present Status of Osteogenesis

DR. ISADORE COHN, New Orleans: I have operated on more than sixty animals. Periosteal transplants or flaps have not reproduced bone in a single instance. I do not believe that periosteum is essential to the life and growth of the transplant, nor do I believe that it is essential to the repair of the defects in bone. Periosteum is not an osteogenetic agent. It serves to protect, to guide the growth of and nourish bone. Bone transplants live and grow; they have an inherent osteogenetic function. In the light of our present evidence, there should be a revision in our teaching in regard to the repair of fractures. Callus is not a product of the periosteum, but of the cortex and endosteum. The autogenous bone graft or transplant is destined to a greater field of usefulness.

(To be continued)

NEW YORK NEUROLOGICAL SOCIETY

Meeting held April 7, 1914

The President, DR. SMITH ELY JELLIFFE, in the Chair

Chronic Progressive Cerebellar Tremor

DR. J. RAMSAY-HUNT: Three cases of this affection have come under my observation, two were advanced cases; the third was of more recent date. In the former the disease had been progressive over a period of six years. It was characterized by a chronic, gradually progressive tremor, coarse and irregular in character, associated with symptoms of asynergia, hypotonia, adiadokokinesis, and the *intermittent asthenia*, an inability to sustain fixed or continuous muscle contractions. All of these symptoms were referred to disturbance of the cerebellar function. The question of multiple sclerosis was an important one in the interpretation of this group of cases. As, however, all the symptoms indicated a disturbance of the cerebellar function, and were slowly progressive, I would regard these cases as representing a well defined and progressive disease of some portion of the cerebellar mechanism. The clinical type I would designate as the *chronic progressive cerebellar tremor*. Such cases have probably been variously classified as hereditary or essential tremor, multiple sclerosis, hysterical tremor, traumatic neurosis and atypical paralysis agitans. The reports of three cases were given.

Insanity among Jews

DR. A. A. BRILL and DR. M. J. KARPAS: From the figures available in literature one could readily see that the sweeping statement made by so many that the Jew was disproportionately afflicted with insanity had never been confirmed by careful statistical data. We examined the statistical data of the admissions to the Manhattan State Hospital for four consecutive years, beginning Oct. 1, 1908, and ending Sept. 30, 1912. The total number of admissions was 5,710 (2,803 men and 2,907 women), of which there were 1,203 Jews, (588 men and 615 women). The Jews thus constituted 21 per cent. of the total admissions. The predominating psychoses among Jewish patients were of the functional type. The highest percentage was found in the manic-depressive group, and second in order was the undifferentiated depressions, the greatest majority of which belonged to the manic-depressive class, and third in order was the dementia praecox group. The relatively high percentage of the imbecility and constitutional inferiority groups might be explained by the fact that these diagnoses were made only too often when a foreign Jew was examined by a physician who was unfamiliar with his language and racial characteristics. The relatively high percentage of the infective exhaustive groups in men may be partially attributed to the poor hygienic conditions at home and in sweat-shops. The general paresis group showed a comparatively high percentage. The Russians, however, found a very low percentage of general paresis among Jews. The explanation lay in the fact that in Russia the orthodox Jews were in the majority, and owing to their rigid religious tenets and early marriages, they led a pure sexual life. The senile and epileptic insanities and psychoses accompanying organic brain diseases showed a relatively low figure, and the alcoholic psychoses represented only 2.5 per cent. of the male alcoholics: there were none among the female admissions.

DISCUSSION

DR. GEORGE H. KIRBY: It is important to know that the Italians are bringing in more epilepsy than any other race; that the Irish supply an enormously disproportionate number of alcoholic psychoses, and that the recently arrived Jews furnish a high percentage of dementia praecox, manic-depressive insanity and feeble-mindedness. To determine the incidence of insanity, one should not compare an essentially immigrant population (such as the Jews in New York with the native born population. An immigrant population may be variously constituted. It usually contains a disproportionate number of young adults, and the two sexes might exist in unusual proportions. On the other hand, the native born population contains from one-sixth to one-fifth of children, and has a much larger proportion of middle aged and old people than an immigrant population. One reason why dementia praecox and manic-depressive insanity are relatively more frequent among Jews admitted to the hospitals than the native born is because there were relatively more young adults in the Jew population. As the average age of the immigrant population increases, there will be more cases of paresis, and, later still, more cases of arteriosclerosis and senile dementia among the Jews.

In regard to feeble-mindedness the data available indicates that it is proportionately higher among Hebrews than other races. Among all the cases of imbecility admitted to the Manhattan State Hospital during the past four years, 50 per cent. of them were Jews, whereas this race constituted only 21 per cent. of the total admissions.

DR. MAURICE FISHBERG: Great care must be taken in interpreting the statistics of insanity. Ninety-five per cent. of Jews are city dwellers as against only thirty-three per cent. of non-Jews. Urban dwellers have a higher incidence of insanity, and must commit their mental defectives to institutions, whereas in rural populations the rates of insanity are lower and the milder forms of mental alieniation are permitted to roam about. The Jews are engaged in financial and commercial pursuits in much larger numbers than the Christians, and this has an influence in the direction of increasing the number of insane among them.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

April, XXXV, No. 4, pp. 179-242

1 Mental Defectives. R. W. Hill, Albany.
2 Causes of Backwardness in Children. C. H. Johnson, Yonkers.
3 Determination of Mental Defect. C. Bernstein, Rome.

American Journal of Insanity, Baltimore

April, LXX, No. 4, pp. 765-1001

4 Chronicity and Deterioration in Manic Depressive Cases. S. Brown, White Plains, N. Y.
5 Analysis of Twenty-Five Cases of Mental Disease Arising in Fifth Decade. E. E. Southard, Boston, and E. D. Bond, Philadelphia.
6 *Distribution of Lesions of General Paralysis. S. T. Orton, Worcester, Mass.
7 *Amyloid Degeneration of Brain in Two Cases of General Paresis. S. C. Fuller, Westboro, Mass.
8 Psychoses Following Apoplexies. J. H. W. Rhein, Philadelphia.
9 Study of Hallucinosis. A. Gordon, Philadelphia.
10 Association Test as an Aid in Diagnosis. W. R. Dunton, Jr., Towson.
11 Father Complex: Report of Five Cases. H. J. C. Kuhlmann, Buffalo.
12 Benjamin Rush, Patriot, Physician and Psychiater. F. Woodbury, Philadelphia.
13 Case of Chorea Insaniens. C. A. Porteous, Montreal.
14 Surgical Procedures on Insane. A. S. Chittenden, Binghamton, N. Y.

6. **Distribution of Lesions of General Paralysis.**—A graduated review by Orton of the intensity of the lesions of general paralysis in six areas of each hemisphere of 50 unselected cases indicated the following order of severity—frontal, hippocampal, temporal, precentral, postcentral and with markedly less involvement of the occipital. The circle of Willis does not act as a path of ready communication between the carotid and vertebral systems. The hippocampal region receives a part of its blood-supply from the carotid group, thus including within the distribution of the branches of the carotid those areas where the lesions have been found to be prominent and suggesting this vascular system as the basis for the distribution in the typical case.

7. **Amyloid Degeneration of Brain.**—Two cases of general paralysis of the insane, one with a rather typical clinical course, the other presenting symptoms apparently of focal origin which obscured the clinical diagnosis, showed at autopsy, in addition to the usual gross anatomical changes of paresis, the typical histopathologic lesions of the disease. In one case there were added certain proliferations of the cells of vessel walls, indistinguishable from histopathologic lesions of the endarteritic non-paretic type of cerebral lues. Other alterations present in both cases were certain glistening, grayish or "fish-flesh" appearing, homogeneous deposits, visible to the unaided eye and limited chiefly to the cerebral cortex. In one case they were small, for the most part discrete, thickly sown in the frontal and parietal areas and found in other portions of the cortex. In the other case this type of alteration was restricted to a portion of the right calcarine area. Here, however, the macroscopic appearance was that of a confluent mass.

Microscopically, the process was shown to have involved the mesoblastic apparatus by the deposition of stuffs in the walls of blood-vessels which eventually converted them into structureless masses. Many of the apparently extravascular deposits proved to be only residuals of vessels, the lumina of which had became obliterated, or groups of vessels which had coalesced as the space between them had became annihilated by the encroachments of their respectively thickened walls, while the remainder not so classed could be reasonably interpreted as deposits within the meshes of the adventitial net-like proliferations exhibited by many vessels. Moreover, the process brought to light a richer vascularization than is usually shown in the most pronounced type of the atrophic paretic cortex. The study of this rich vascularization in a general way confirmed the contentions of Cerletti, namely, that what heretofore has been looked on as actual vessel proliferation in the brain, in the majority of instances, is more apparent than real.

The microchemic differences which these deposits exhibited led Fuller to conclude that, despite the wide distribution in the first case and the extent to which surrounding structures had been compromised, the process was still in a stage of devolution, with an amyloid degeneration as the goal. The tannin-silver method in demonstrating the connective tissue invasion of nervous structures by a net-like extension of the proliferated adventitia of blood-vessels added not only confirmation of the previous observations of Snessarew and Achucarro, but furnished the final link in the chain of evidence that in these two cases the process played itself out in the mesoblastic apparatus.

American Journal of Public Health, Boston

March, IV, No. 3, pp. 179-288

15 Occupational Diseases and Legislative Remedies. J. B. Andrews, New York.
16 Investigation into Relationship of House Fly to Disease—Special Importance of Fly in Infant Welfare. D. B. Armstrong, New York.
17 Midwives in America. C. C. Van Blarcom, New York.
18 Meaning of "Faith Cures" and Other Extra-Professional "Cures" in Search for Mental Health. W. A. White, Washington, D. C.
19 Prevention of Carriers. W. A. Sawyer, Berkeley, Cal.
20 *Study of Germicidal Action of Ultraviolet Rays. E. M. Houghton and L. Davis, Detroit.
21 Serious Fallacy of "Standard" Methylene-Blue Putrescibility Test. A. Lederer, Chicago.
22 Report of Committee on Industrial Hygiene and Sanitation in Home. J. H. Landis.
23 Report of Committee on Study and Prevention of Communicable Diseases. F. C. Curtis.

20. **Germicidal Action of Ultraviolet Rays.**—Houghton and Davis found that the ultraviolet rays produced by the Cooper-Hewitt mercury arc have a strong bactericidal action. Certain species of bacteria in aqueous suspension, including spore-forming organisms, are killed by exposure to rays. Molds, however, are only partially destroyed by the ultraviolet light. The action seems to be a photo-mechanic process, and is, in all probability, due to absorption of the ultraviolet rays by the bacterial protoplasm. Water, wines, many inorganic and a number of organic substances in aqueous solution, can be sterilized by intraviolet light. Bacterial vaccines require a prolonged action. Proteins and other bodies of high molecular weight interfere with the action of the rays. Turbidity, both organic and inorganic, has a similar action. Color, within certain limits, seems to have no influence.

American Journal of Roentgenology, Detroit, Mich.

March, I, No. 5, pp. 201-232

24 *Some Unusual Bone Lesions. A. Hartung, Chicago.
25 *Preliminary Report on Control of Percussion by Means of Roentgen Rays. G. C. Shattuck, Boston.
26 Roentgen-cinematography of Stomach and Duodenal Cap. L. G. Cole, New York.

24-25. Abstracted in The Journal, November 8, pp. 1742 and 1744.

Annals of Surgery, Philadelphia.

May, LIX, No. 5, pp. 645-804

27 Technic of Comparative Hyperemia. C. G. Cumston, Geneva, Switzerland.
28 *Vaccine and Serum Therapy in Septicemia. A. C. Burnham, New York.
29 Advantages of Double Resection in Certain Types of Goiter. D. C. Balfour, Rochester, Minn.
30 *Frequency of Carcinoma of Appendix. W. C. MacCarty and B. F. McGrath, Rochester, Minn.
31 Consideration of Certain Coexisting Lesions of Gall-Bladder and Kidney. E. Eliot, Jr., New York.
32 Splenic Anemia with Splenectomy (Banti's Disease). F. C. Herrick, Cleveland.
33 *Ileocecal Tuberculosis. J. Wiener, New York.
34 *Experimental Study of Intestinal Obstruction. H. B. Stone, B. M. Bernheim and G. H. Whipple, Baltimore.
35 Sarcoma of Small Intestine. J. Speese, Philadelphia.
36 Surgical Treatment of Acute Gonorrheal Epididymitis by Epididymotomy. J. B. Clark, New York.

28. **Serum Therapy in Septicemia.**—One hundred and eleven consecutive cases of severe infection in which either the

course and symptoms were those of septicemia, or cultures showed the presence of bacteria in the circulating blood, were studied by Burnham. The mortality of the entire series (111 cases) was 74, or 66.6 per cent. In some of the cases vaccines were used in the treatment. Burnham believes that vaccines are of benefit in many of the cases not overwhelmed at the onset by the severity of the infection, and, clinically, seem to benefit the majority of the cases. Antistreptococcic serum is of great value, especially during the early stage when its bactericidal powers are most pronounced, and if given in sufficient dosage during the period of invasion will often change a systemic bacteriemia into a localized infection. The combination of antistreptococcic serum, used in the early stage of septicemia, together with autogenous vaccines, used as soon as they can be prepared from blood-cultures, seems to be particularly beneficial. If the blood-cultures are sterile, vaccines may be prepared from the local lesion, although this method is unsatisfactory and may lead to errors. Stock vaccines are still less desirable and are of uncertain value.

Burnham warns that neither sera nor vaccines, although they usually do little harm, are free from danger, and the dosage and intervals need to be carefully worked out. Open-air treatment in cases in which cultures are sterile and as an adjunct to vaccine and serum therapy seems to be the best method of increasing the resistance of the patient.

30. **Carcinoma of Appendix.**—One in every 225 of all appendices, and one in every 53 partially or completely obliterated appendices MacCarty and McGrath found were carcinomatous. Thirty-one per cent. were found in association with other abdominal and pelvic conditions.

33. **Ileocecal Tuberculosis.**—Ileocecal tuberculosis Wiener states is usually a primary lesion. The infection takes place either from tubercle bacilli that have been swallowed (milk or sputum) or through the mesenteric glands. Pathologically we distinguish two forms, the ulcerative or enteroperitoneal and the hypertrophic ileocecal tumor. The diagnosis is very difficult owing to the similarity to appendicitis, with which diagnosis most cases come to operation. The two operations to be considered are lateral anastomosis with or without exclusion and resection. In the majority of cases Wiener suggests the lateral anastomosis first, and there will then often be no secondary operation required; or, if required, it will be done under much more favorable conditions. Wiener reports seven cases.

34. **Experimental Study of Intestinal Obstruction.**—In dogs the authors were able to isolate by double ligatures a loop of the duodenum and high jejunum and reestablish the continuity of the alimentary tract about the closed loop; such a condition is rapidly fatal. A fluid collects within the closed loops that is highly toxic, producing, when injected into normal dogs, a reaction much like that of dogs with closed loops. This toxin is believed to be the cause of death. The toxin is formed by the mucosa of the closed loop, some of it being secreted into the lumen and some remaining within the cells of the mucosa. If the closed loops be drained externally, the postoperative course of the animal is altered, but varying degrees of intoxication still are observable, and the presence of toxin within the mucosa of the drained loops is demonstrable. Absorption takes place not only from the loop contents but from the mucosa direct, the latter being a quite important source of intoxication.

There are various possible explanations for the perversion of function that causes the mucosa to become a source of intoxication, but none is yet proved. The fundamental explanation of the change is as yet unknown. It is possible by the repeated injection of sublethal amounts of the toxin to immunize dogs against fatal doses. The parenchymatous organs, spleen, intestinal mucosa, etc., and particularly the liver, seem to be especially concerned in the production of the resistance against the toxin when dogs are immunized. The extract of an immunized dog's liver, properly handled, will destroy the toxin in vitro. The authors believe that the intoxication observed in closed loops is quite similar to that existing in simple obstruction, and that the same toxin is the essential agent causing death in each instance. The establishment of an enterostomy for drainage in clinical cases may not meet all the requirements for successful treatment.

Boston Medical and Surgical Journal

May 7, CLXX, No. 19, pp. 709-744

37 Results of Swift-Ellis Intradural Method of Treatment in General Paresis. A. Myerson, Taunton.
38 Hip Fractures and Their Treatment. F. J. Cotton, Boston.
39 Experimental Method as Utilized in Clinicopathologic Department. H. T. Karsner, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

May, XXV, No. 279, pp. 133-164

40 *Colloidal Gold Reaction in Cerebrospinal Fluid. S. R. Miller and R. L. Levy, Baltimore.
41 *Essential Features of Acidosis and Their Occurrence in Chronic Renal Disease. A. W. Sellards, Baltimore.
42 Work of Out-Patient Department of Henry Phipps Psychiatric Clinic. C. M. Campbell, Baltimore.
43 Dystrophia Epithelialis Cornea. Report of Case. L. B. Whitham, Baltimore.

40. **Colloidal Gold Reaction in Cerebrospinal Fluid.**—The present report by Miller and Levy is based on the examination of 210 spinal fluids secured from 171 cases. In 2 of 8 examinations made on 4 cases of purulent meningitis, typical *Verschiebung nach oben* was observed. Two gave reactions analogous to the paretic type, with the noteworthy differences that the supernatant fluid in the low dilutions showed a pink turbidity and the precipitation continued throughout the remaining tubes. Eleven cases of tuberculous meningitis confirmed either by the finding of tubercule bacilli or by autopsy, gave, with one exception, maximum color changes in the higher dilutions. One observation confirms Eicke's statement that in the early stages the reaction may simulate that of syphilis. As the disease advances there is *Verschiebung nach oben*. Of 10 cases of congenital syphilis 3 showed moderate pleocytosis, 5 a positive phase I. Reactions of the luetic type were obtained in 80 per cent. Reactions in the "luetic zone" occurred in 4 out of 5 cases of secondary syphilis. In 11 cases of tertiary syphilis comprising instances of latent syphilis, gummatous lesions and vascular manifestations, a reaction in the luetic zone occurred in 4. In none was there any demonstrable clinical evidence of central nervous system involvement. Several of the individuals were elderly men, who had had their primary infection many years before, and who, in all probability, will never develop cerebrospinal syphilis, tabes or paresis.

All the tabes dorsalis cases showed luetic curves. With 3 exceptions, these were of moderate intensity, yet definite. Thirteen of the 15 fluids from cases of cerebrospinal syphilis examined reacted in the luetic zone, 6 with fairly marked intensity. All of the 49 cases of general paresis gave characteristic paretic curves. The more advanced cases clinically have shown the most striking tests. The authors conclude that the colloidal gold test is essentially a laboratory method. It can be performed rapidly and with a minimal amount of spinal fluid. Extreme care in the preparation of reagents and the cleaning of glassware is imperative. The test is of no aid in the diagnosis of purulent or tuberculous meningitis. It has no advantage over known laboratory procedures in the diagnosis of congenital syphilis. Reactions in secondary and tertiary syphilis are inconstant. Their significance when present is now known. The statement that they indicate the earliest stages of central nervous system involvement lacks proof. The positive reactions observed in the majority of cases of tabes and cerebrospinal syphilis are not characteristic. The authors feel that the reaction peculiar to paresis is sufficiently constant to warrant its use as an aid in the differentiation of this condition from others with which it might be confused.

41. **Acidoses and Their Occurrence in Chronic Renal Disease.**—The essential feature in acidosis, Sellards says, consists in a general impoverishment of the body in bases or in substances which readily give rise to bases, e. g., sodium carbonate. This may be brought about by the loss of bases as such, as in the so-called relative acidosis, or by the neu-

tralization by acids as in the so-called absolute acidosis. In either case the end result is the same and the distinction between relative and absolute acidoses is misleading. The fundamental features of every acidosis which have been established thus far are: 1. An increase in the tolerance of the body to fixed bases. 2. A diminution in the titratable alkalinity of the blood-serum. 3. A diminution in the carbon dioxid of the blood. The excretion of ammonia either in its relative or absolute amounts, Sellards says, does not afford a definite basis for the detection of acidosis. Thus: 1. The ammonia excretion may be normal in acidosis. This may occur in diabetic cases which are free from any suggestion of renal disease. In the nephritic cases in which the ammonia is low in the urine it is probable that there is no increase in the quantity of ammonia in the blood, though some have suggested that it accumulates in the blood and its excretion in the urine is suppressed. 2. The ammonia excretion may be increased even to the extent of 2 gm. per day with an ammonia coefficient of 40 per cent., in conditions in which there is no acidosis.

An acidosis of high grade occurs in certain nephropathies. The acidosis reaches its maximum in the uremia of acute and of chronic diffuse nephropathy. It is not a terminal event, for it is often present in relatively high grade in outspoken cases many months before the development of uremia. It represents the effect rather than the cause of the renal lesions and thus constitutes a condition of only secondary importance. The characteristics of the chemical pathology of this acidosis are: 1. Increase in tolerance to bases. 2. Decrease in titratable alkalinity of the blood. 3. Decrease in the carbon dioxid content of the blood. 4. Normal excretion of ammonia. 5. Absence of any disturbance of carbohydrate or fat metabolism, and absence of the salts of any abnormal organic acids.

The changes in the titratable alkalinity of the blood which can be detected by the use of phenolphthalein afford a ready means for the prompt diagnosis of acidosis and the method is particularly applicable in renal disease. In this condition it furnished a definite indication of the amount of bicarbonate that will be required for the relief of the acidosis. The determination of the tolerance of the body to sodium bicarbonate also affords a delicate method of general application for the detection of acidosis. Examination of the feces showed that bicarbonate was not excreted into the intestine, even in the cases in which massive doses were injected. Some of the toxic symptoms of uremia Sellards claims are due not to the presence of a toxin, but to the absence of a normal constituent of the blood, namely, the carbonates. Therefore the therapeutic bleeding for the removal of any toxins that may be circulating causes at the same time a still further diminution in a substance in which the blood is already seriously depleted. This disadvantage could be readily obviated by the injection of bicarbonate at the time of bleeding. Sellards suggests that this acidosis is perhaps the result of defective function of the kidney in the normal separation and excretion of acid salts. If this supposition is correct, the acidosis would be an indirect expression of renal retention. In support of this it has been found that the acidosis is in general parallel to the ordinary signs of renal retention, such as the suppression of the excretion of dyes and sugars and the accumulation of non-protein nitrogen in the blood.

Indiana State Medical Association Journal, Fort Wayne

April 15, VII, No. 4, pp. 141-194

44 Occupational Traumatisms of Eye. E. M. Shanklin, Hammond.
45 Typhoid Perforation, Early Operation, Death from Suppurative Peritonitis Fifty-Five Hours after Operation. B. P. Weaver, Ft. Wayne.
46 Indications for Surgery of Ethmoid and Sphenoid Labyrinth. Case Report. J. McCall, Jr., Terre Haute.
47 Ocular Neurasthenia. J. R. Newcomb, Indianapolis.

Journal of Cutaneous Diseases, New York

April, XXXII, No. 4, pp. 257-346

48 Case for Diagnosis: Impetigo or Impetigo Herpetiformis? H. P. Towle, Boston.
49 Consideration of Two Outbreaks of So-Called Pemphigus Neonatorum. A. P. Biddle, Detroit.
50 Oriental Sore in Americas, Report of a Case. E. L. McEwen, Chicago.
51 Pathology of Xanthoma Tuberosum Multiplex. F. C. Knowles, Philadelphia.
52 Acrodermatitis Chronica Atrophicans: Transition from Infiltration to Atrophy. F. Wise, New York.

May, No. 5, pp. 347-412

53 Pityriasis Rosea. W. D. Owens, U. S. Navy. Idem. H. E. Alderson, San Francisco.
54 *Tuberculin Therapy in Tuberculosis Cutis, Tuberculides and Allied Conditions. G. M. MacKee, New York.

54. **Tuberculin Therapy in Tuberculosis.**—Fifty-two cases were treated by MacKee with bacillus emulsion in various dilutions. These cases included lupus vulgaris, tuberculosis, verrucosa cutis, tuberculosis of buccal mucosa, scrofuloderma, tuberculous adenitis, Bazin's disease, tuberculous dactylitis, papulonecrotic tuberculid and lupus erythematosus. In this series true tuberculosis of the skin apparently completely recovered under the influence of tuberculin injections. All the cases of ulcerative tuberculosis of the skin and mucous membrane failed to yield to tuberculin. At first this was thought to be due to the activity of complicating organisms, and perhaps it is, but these lesions failed to respond to a combination of tuberculin and mixed, polyvalent stock vaccines. The ulcerative lesions of Bazin's disease yielded at once. Lupus erythematosus and papulonecrotic tuberculid, which are thought to be due to the products of tubercle bacilli rather than to the organisms themselves, failed to respond. In this series of cases nothing but tuberculin was employed. There was no local or general treatment.

Journal of Outdoor Life, New York

April, XI, No. 4, pp. 97-127

55 Tuberculosis Among Homeless Men and in Lodging Houses. C. B. Barnes, New York.
56 Tuberculosis "Repeaters." S. Potter, New York.
57 Difficulties Encountered by Hospital Authorities in Detaining Homeless Tuberculous. R. J. Wilson, New York.
58 Detention of Tuberculous in City Hospital. W. H. Conley, New York.
59 Effect of Habits of Posture on Health. J. E. Goldthwait, Boston, Mass.
60 How and When Do We Contract Tuberculosis? L. Brown, Saranac Lake.
61 Home Treatment of Pulmonary Tuberculosis. G. M. Sternberg, Washington, D. C.
62 Tuberculosis and Its Treatment. W. C. Klotz, Los Angeles.
63 Adventures of Tuberculosis Branch Germ as Told by Himself. A. Somerfield, Naperville, Ill.

May, No. 5, pp. 129-159

64 Practical Application of Sanatorium Treatment for Tuberculosis. H. S. Newhart, North Wilmington, Mass.
65 Subjective Symptoms of Pulmonary Tuberculosis and Their Significance to Patient. G. L. Bellis, Wales, Wis.
66 Nature Study for Tuberculous Children. S. L. Patteson, South Euclid, Ohio.
67 What Fresh Air, Good Food and Plenty of Sleep Did for One Baby. I. Webber, Bobcaygeon, Ontario.

Lancet-Clinic, Cincinnati

April 18, CXI, No. 16, pp. 461-488

68 Kidney Function Estimation in Preparation of Patients for Prostatectomy. A. P. Cole, Cincinnati.
69 Present Status of Medicine and Dermatology in Japan. A. Ravogli, Cincinnati.
70 Prostitution System in Palestine. D. C. McMurtrie, New York.

April 25, No. 17, pp. 489-516

71 Brain Tumors from Clinico-Neurologico-Ocular Standpoint. L. D. Brose, Evansville, Ind.
72 Needed—New Human Race. J. H. Kellogg, Battle Creek, Mich.
73 Public Welfare Department—Its Proper Relations to Hospitals Under New Charter. O. P. Geier, Cincinnati.
74 U-Shaped Electromagnet for Surgical Purposes and Its Calculations. G. T. Fette, Cincinnati.

May 2, No. 18, pp. 517-542

75 Case of Unilateral Renal Aplasia. C. E. Kieley, Cincinnati.
76 Needed—New Human Race. J. H. Kellogg, Battle Creek, Mich.
77 Public Welfare Department—Its Proper Relations to Hospitals Under New Charter. O. P. Geier, Cincinnati.
78 Eye-Strain as Cause of Headache. J. Ranly, Cincinnati.

Medical Record, New York

May 9, LXXXV, No. 19, pp. 829-874

79 *Practical Management of Chronic Osteo-Arthritis. Report of Cases. P. W. Roberts, New York.
80 Loose Kidney Question. R. T. Morris, New York.
81 Surgical Treatment for Reduction of Vacuum Caused by Nasal Obstructions. C. A. Bucklin, Glasgow, Scotland.

82 *Ether-Oil Rectal Anesthesia: Some Theoretical Considerations. H. C. Luke, New York.
83 Practical Scientific Diagnosis and Treatment of Sterility in Male and Female. M. Huhner, New York.
84 Four Cases of Multiple Myeloma. M. H. Kahn, New York.
85 Case of Vincent's Angina, Treated with Neosalvarsan. H. H. Amsden, Concord, N. H.
86 Biologic Treatment for Cancer. C. F. D'A. Francis, Brooklyn.

79. **Practical Management of Chronic Osteoarthritis.**—Roberts states in considering the treatment of osteoarthritis, the problem presented is to remove discernible foci of infection, improve local nutrition, correct such deformities as tend to put undue strain on weight-bearing joints, and to place the painful parts at rest, so far as that is possible. So-called anti-rheumatic remedies, such as the alkalies, salicylates and iodids, have no effect on these conditions and should be avoided because of the digestive disturbances which frequently follow their exhibition. The diet usually prescribed for "rheumatism" is harmful, because it denies certain elements of nutrition which the economy demands. Such treatment as is afforded at the various watering places is at best of merely temporary benefit and has at times been observed to be a source of real injury. Massage and manipulation of joints with the idea of keeping them pliable is an inexcusable error, for it serves only to perpetuate the irritation of the already sensitive tissues. It would seem, too, that the importance of correcting visceroptosis in these cases has been very much overestimated.

Where a focus of infection exists, it should be removed. Vaccine treatment offers much that is hopeful for the future, but it is still in the developmental stage. The essentials of treatment followed by Roberts in his cases have been the administration of glandular preparations, rest, a diet reducing the intake of calcium, and the use of the d'Arsonval or bipolar high frequency current.

82. **Ether-Oil Anesthesia.**—The advantages of the oil-ether outside of its simplicity in Luke's opinion seem to be more apparent than real. In fact, with the possible exception of selected cases of bronchoscopy, he finds it difficult to see any indication for its use that cannot be as well and probably more safely met by the modern pulmonary methods.

Some of the undesirable clinical features which, Luke says, must certainly be looked for in a method involving so many theoretical objections are the following: (1) the rather exhaustive and unpleasant experience accompanying any special rectal preparation, as required here; (2) the occasional necessity and inconvenience of preliminary and subsequent proctoscopic examinations, as a matter of safety and caution; (3) occurrence during the induction period of cramps, with distressing sensations of fulness and pressure in the lower bowel, accompanied by desire for stool; varying degrees of anal irritation occurring early or late; (4) prolonged induction stage with frequent necessary recourse to the inhalation method; (5) any time after the first fifteen or twenty minutes' respiratory depression may rather suddenly or slowly appear, followed by arrested breathing, loss of muscular tone and dilated pupils, with the possibility of fatal syncope supervening; (6) the occurrence of mild to very severe grades of proctitis and colitis, these complications appearing in more aggravated forms where any pre-existent pathological condition is present; (7) delayed recovery, which may be prolonged for many hours; (8) increased toxemia.

Missouri State Medical Association Journal, St. Louis

April, X, No. 10, pp. 355-398

87 *Practical Methods of Differentiating between Active Tuberculous Lesions and Healed or Quiescent Ones. F. M. Pottenger, Monrovia, Cal.
88 Relation of Physician to Coroner's Office. L. R. Padberg, St. Louis.
89 Introduction to Laboratory Symposium. C. H. Neilson, St. Louis.
90 Stomach and Feces. H. W. Soper, St. Louis.
91 Serology. C. L. Klenk, St. Louis.
92 Luke, Greek Physician. G. Homan, St. Louis.
93 Free Service of Department of Preventive Medicine of University of Missouri. O. W. H. Mitchell, Columbia.

87. **Tuberculous Lesions.**—It is not right, says Pottenger, to speak of the tuberculin treatment of tuberculosis. Tuberculin alone is no treatment for tuberculosis. He considers the scientific treatment of tuberculosis a combination of tuberculin with all measures which will build up the patient and make his resisting power greater. The injecting of tuberculin alone, without proper care and supervision of the patient is unscientific and nothing short of malpractice.

Tuberculin is a specific remedy. Its action in tuberculosis is specific in that it stimulates the body cells to the production of certain definite antibodies whose function it is to attack and destroy tubercle bacilli and their toxins with which they come in contact. This is the only form of treatment that is specific. Fresh air, good food, proper regulation of life and the alleviation of distressing symptoms and complications are not specific, yet they are a very important part in the treatment of tuberculosis. They make the patient stronger; build up his resisting power; increase his reactivity and make his body cells capable of reacting to the tuberculin when it is injected or when it is produced normally.

Tuberculin also acts in stimulating healing. It increases fibrosis and aids in the production of scar tissue and encapsulation. While of inestimable value when properly given, it is of little or no value and may even do harm when given improperly. Too much must not be expected from tuberculin as a remedy. If it stimulates the body cells to the production of antibodies and increases fibrosis it is performing its function. It may fail to cure the disease and yet perform its function perfectly. Many men who use tuberculin fail to grasp what it should do. The result is that they are often disappointed. It cannot prevent necrosis when begun; it cannot fill up cavities; neither can it restore lost function to the various organs; but, if given properly, it will increase the antibodies in the blood, and will stimulate an increase of scar-tissue formation and thus improve the patient's chances of cure; but it should always be reinforced with other measures which will help the patient.

New Orleans Medical and Surgical Journal

May, LXI, No. 11, pp. 785-882

94 Comparative Medicine. W. H. Dalrymple, Baton Rouge.
95 Meat Inspection. W. H. Dalrymple, Baton Rouge.
96 Community's Right to Health Protection. A. H. Gladden, Monroe.
97 Phylacogens in Tuberculosis to Control Temperature Due to Secondary Infection. R. H. Chilton, New Orleans.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

April, XVIII, No. 4, pp. 189-233

98 Two Operations for Aneurysm after Matas Method. H. A. Royster, Raleigh, N. C.
99 Intestinal Perforation in Case of Ambulatory Typhoid—Operation with Recovery. B. C. Willis, Richmond.
100 Case of Popliteal Aneurysm and Its Rapid Disappearance Under Antisyphilitic Treatment. S. B. Cary, Richmond.
101 *Case of Lymphosarcomatosis under Roentgen Ray Treatment. D. D. Talley, Jr., Richmond.

101. **Case of Lymphosarcomatosis**—Talley's patient has improved steadily under Roentgen-ray treatment for five months, in spite of two other intercurrent affections. The blood-picture has improved in proportion to the clinical symptoms, with steady decrease of leukocytes in conjunction with increase in hemoglobin. Oct. 10, 1913, the leukocytes numbered 63,000, hemoglobin 45 per cent.; now the leukocytes number 19,300, hemoglobin 80 per cent.

Pennsylvania Medical Journal, Athens

April, XVII, No. 7, pp. 523-604

102 Real Significance of Visceroptosis. J. E. Goldthwait, Boston.
103 Surgical Treatment of Gastroptosis. H. D. Beyea, Philadelphia.
104 *Removal of Colon for Obstructive Fecal Stasis. Report of Eight Cases. J. G. Clark, Philadelphia.
105 *Roentgen-Ray Diagnosis of Gastroptosis. H. K. Pancoast, Philadelphia.
106 Care of Advanced Cases of Tuberculosis. C. J. Hatfield, Philadelphia.
107 Which Training Makes Best Specialist. H. W. Cattell, Philadelphia.
108 Value of Anatomy as Applied to Diagnosis of Medical Conditions. W. E. Robertson, Philadelphia, and J. Roxby, Swarthmore.

109 Transitory Vascular Hypertension Independent of Renal or Arterial Disease. R. G. Torrey, Philadelphia.
110 *Interstate Endorsement of Medical Licensure. J. M. Baldy, Philadelphia.

104. **Removal of Colon for Obstructive Fecal Stasis.**—Clark is skeptical as to the final outcome in cases in which the colon is not at least partially obstructed, for he cannot accept the theory that the colon is a useless organ. His experience convinces him that if the most conservative methods are adhered to, benefit may accrue from surgical intervention in these cases, but even with these successes there will be a considerable percentage of failures. A summary of his eight cases of colectomy shows the following results: 1. The radical relief of constipation in 5 of the 8 cases. 2. An absence of thirst in all but 1 case, and in this only of moderate degree. 3. An absence of immediate postoperative diarrhea in all cases, this symptom appearing several months later in one patient. 4. A somewhat remarkable gain in weight in 5 cases. 5. Striking improvement in general health in 3 cases with a considerable disappearance of neurasthenic symptoms; only partial or doubtful improvement in 2 and complete failure in 2; death of another from postoperative adhesions some months later. Although the immediate results were all favorable, yet the subsequent history Clark says may prove disappointing; therefore, it behooves every one who performs even a small number of these operations to keep the closest possible oversight of these patients after they leave the hospital. The most critical judgment should be brought to bear in analyzing results, for if it lead into wrong channels, this question has the greatest potentialities for surgical evil, and no one should report a single case without the fullest history and complete notes on the result some months subsequent to the operation. Based on practical deductions secured from the study of cases of general ptosis, Clark does not consider that they come within the operative domain unless obstructive symptoms are evident. For this reason, he does not deal with the ptosis *per se*, but with the particular portion of the intestine which is so hampered by actual sharp angulation that the fecal current is dammed back or retarded; hence the symptom of localized obstruction, rather than that of constipation, which cannot be relieved therapeutically, becomes the indication for surgical intervention. That his attitude is a conservative one is attested by the fact that in two years he has seen only eight cases to which he considered these radical measures applicable. These cases were represented clinically by extreme degrees of obstructive constipation, and dilated.

105. Abstracted in The Journal, Oct. 25, 1913, p. 1565.

110. Abstracted in The Journal, March 7, p. 805.

Public Health Journal, Toronto

April, V, No. 4, pp. 209-282

111 Care and Training of Feeble-Minded. E. R. Johnstone, Vineland, N. J.
112 Need of Institutional Care of Feeble-Minded. L. M. Brooking, Toronto.
113 Nova Scotia League for Care and Protection of Feeble-Minded. Stead, Halifax, N. S.
114 Mental Defectives in Alberta. R. B. Chadwick, Alberta.
115 Mentally Defective Pupils in Public Schools of Toronto. R. H. Cowley, Toronto.
116 Feeble-Minded Women in Houses of Refuge. J. McNeillie, Peterborough.
117 Need of Institutional Care of Feeble-Minded. A. Shortt, Ottawa.
118 Problem of Feeble-Minded. W. Cummings, Toronto.
119 Feeble-Mindedness—Municipal Problem. D. M. Cameron, London.
120 Feeble-Minded and Social Evils. G. S. Strathy, Toronto.
121 City Responsible for Care and Training of Feeble-Minded. J. O. McCarthy, Toronto.
122 Feeble-Minded and Crime. J. E. Farewell, Whitby.
123 Rural Cold Storages, Scientific Economic Necessity. P. H. Bryce, Ottawa.

Wisconsin Medical Journal, Milwaukee

April, XII, No. 11, pp. 345-378

124 Prostatectomy in Aged. J. F. Pember and T. W. Nuzum, Janesville.
125 Feeble-Minded and Their Relation to Society. A. L. Beier, Chippewa Falls.
126 Are Ideals Worth While? E. Evans, La Crosse.
127 Cancer and Cancer Problem. W. E. Ground, Superior.
128 Treatment of Peritonsillar Abscess (Quinsy). P. J. Calvy, Fond du Lac.
129 *Case of Trichiniasis with Unusual Blood-Picture. H. E. Cooper, Wauwatosa.

129. **Trichiniasis with Unusual Blood-Picture.**—A count of the leukocytes was made in Cooper's case on the day of entrance and showed 23,500 leukocytes. A smear of this blood was then stained with the Nocht-Jenner stain and a differential count of this stained specimen gave these surprising figures: Polymorphonuclear neutrophils, 18 per cent.; polymorphonuclear eosinophils, 72 per cent.; polymorphonuclear basophils, 0.5 per cent.; small lymphocytes, 1.5 per cent.; large lymphocytes, 1.5 per cent.; transitional leukocytes, 4.5 per cent.; large mononuclear leukocytes, 2 per cent. Other stains were made to verify this count, one of these stains showing an eosinophilia of 80 per cent. The attack was of slight intensity. The fever was intermittent in character, reached 102 to 103 F. in the afternoon, dropping down to normal in the early morning. There was no increase in pulse or respiration. The diarrhea which was present at the time of admission was checked within two or thrre days after entrance. The adult parasite, *Trichinella spiralis*, was never found in the stools. One week after entrance the fever began to decrease and on the tenth day was practically gone. The amount of eosinophilia remained about the same until several days after the temperature had become normal, when the count showed the eosinophilia to be decreased to 55 per cent. Just before leaving the hospital, apparently recovered, another count was made, which still showed an eosinophilia of 40 per cent., the picture being as follows: Polymorphonuclear eosinophils, 40 per cent.; polymorphonuclear neutrophils, 37 per cent.; polymorphonuclear basophils, 1 per cent.; small lymphocytes, 13 per cent.; large lymphocytes, 4 per cent.; transitional leukocytes, 5 per cent.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

April, VIII, No. 1, pp. 1-130

1 Differentiation of More Important Mammalian Trypanosomes. W. Yorke and B. Blacklock.
2 Bronchial Spirochetosis in Uganda, with Pneumonic Symptoms. J. A. Taylor.
3 *Attempts to Find Disease Germs in Bed Bugs (Cimex Lectularius) after Feeding Experiments in Various Diseases: Leprosy, Lymphadenoma, Carcinoma, etc. D. Thomson.
4 Pathogenicity of Trypanosome (T. Nigeriense). J. W. S. Macfie.
5 Occurrence of Spirochetosis of Fowls in Southern Nigeria. J. W. S. Macfie and J. E. L. Johnston.
6 *So-Called Cure for Trypanosomiasis. W. Yorke and B. Blacklock.
7 *Antimony Trioxid in Treatment of Experimental Trypanosomiasis. W. Yorke and B. Blacklock.
8 Variations in Form of Microfilariae Found in Man. J. E. L. Johnston.
9 Occurrence of Plasmodium in Blood of West African Monkeys. H. Seidelin and A. Connal.
10 Scratching Birds and Tsetse-Fly. L. Lloyd.
11 *Origin and Development of Gametes (Crescents) in Malignant Tertian Malaria. D. Thomson.
12 Second Report on Cestoda and Acanthocephala Collected in Queensland. T. H. Johnston.
13 Microsporon Scorteum from Case of Ringworm in Man. H. Priestley.
14 *New Malaria Parasite in Man. J. W. W. Stephens.
15 Mutilation of Wounded on Battlefield. J. B. Christopherson.

3. **Attempts to Find Disease Germs in Bed Bugs.**—Four hundred and fifty-five bed bugs were used by Thomson in this research, of which 184 were controls. No acid-fast bacilli were found in 105 bed bugs fed on lepers, nor in thirty-five bed bugs caught on the bed mattresses of leper patients. In the few experiments conducted, nothing abnormal was found in bugs fed on cases of lymphadenoma, chronic lymphatic leukemia, sarcoma, carcinoma and malaria. Forty bed bugs fed on a case of splenomedullary leukemia all developed numerous Charcot-Leyden crystals in their intestines.

6. **So-Called Cure for Trypanosomiasis.**—Yorke and Blacklock tested the "sera" (Mehnarto contratoxin) supplied by a Mr. H. C. Sieg and found that it had not the slightest

therapeutic value in animals experimentally infected with pathogenic trypanosomes.

7. **Antimony Trioxid in Treatment of Trypanosomiasis.**—As regards the amount of antimony trioxid which can be given at a single dose without causing toxic effects, either local or general, it was found by Yorke and Blacklock that, as is generally the case, a relatively much larger quantity is borne by small than by large animals. At least 1 mg. per 10 gm. of body-weight can be administered intramuscularly, or intraperitoneally to rabbits, guinea-pigs, rats and mice without any untoward result. In donkeys and dogs, on the other hand, such a dose frequently caused death, and even much smaller doses were followed by abscesses at the site of inoculation. Although the amount of drug administered can be regulated, there is no control over the amount or rate of absorption. Post-mortem evidence proves that the proportion absorbed during a period of six months is exceedingly small. In view of the extremely long periods after which relapses have occurred, the authors are cautious in stating that an animal is cured. But as several have remained negative without relapse for over two hundred days, and subinoculated animals have not become infected, it appears that a certain number of cures have resulted.

11. **Development of Gametes in Malignant Tertian Malaria.**—Thomson claims that crescents are produced from ordinary asexual spores of *P. falciparum*, due to a development of immunity toward the latter. They develop somewhere in the internal organs, and then appear suddenly in the peripheral blood. The period required for their development is about ten days. Crescents do not generally live more than a few days in the peripheral blood. Crescents may be present in the peripheral blood during periods as long as eight weeks, not because individual crescents survive for that time, but because their numbers are constantly replenished from surviving asexual forms. Fresh broods of crescents come into the circulating blood daily or every other day, or irregularly, according as the asexual sporulations occurring ten days before, were quotidian, tertian or irregular.

Quinin has no direct destructive action on crescents, either during their development or afterward, but it destroys the asexual source of supply. Quinin in doses of 20 grains daily reduces the crescents to numbers less than one per cubic millimeter of blood within three weeks. The crescents obtained from autopsy smears of the inner organs take about ten days to develop into the adult state in the inner organs. They develop chiefly in the bone-marrow and in the spleen. The protoplasm of the crescent in all stages of development stains a faint greyish-blue often with a yellow tinge, in contrast to the deeper blue of the asexual schizonts. Adult crescents have been found in autopsy smears of the spleen and bone-marrow after eleven days' quinin treatment (45 grains daily). Malarial pigment has been found in spleen and marrow smears after forty-seven days' quinin treatment (30 grains daily).

No evidence was obtained of parthenogenesis in crescents. Crescents become spherical in about four minutes after the blood is drawn, which appears to coincide with the time of coagulation. They may flagellate in four minutes after the blood is drawn, but some may not flagellate till after fifty minutes. The crescents in patients subjected to thorough and continuous quinin treatment are able to flagellate. The spherulation of crescents is probably due to osmosis, which in turn probably stimulates the actual flagellation. The polar bodies seen in crescents which have become spherical are extruded chromatin. The microgametocytes are capable of extruding 4, 6, 8 or 10 flagella (microgametes). There is no reason to believe that crescents ever flagellate in the circulating blood of a patient.

14. **New Malaria Parasite in Man.**—The parasite studied by Stephens was found in the blood of an East Indian child. It is extremely ameboid. Thin processes often extend across the cell or occur as long tails to more or less ring-shaped bodies. These processes may be several in number, and may give the parasite most peculiar fantastic shapes like that of an irregular web or mesh. The cytoplasm is always scanty, i. e., the individual ameboid processes are delicate or thin, and the parasite has but little bulk or density. While forms resembling "rings" do occur, yet, owing to the abundance of all kinds of irregular forms, it is certainly difficult to find quite typical "signet" rings.

Laterally applied parasites also occur, but in them the chromatin is not dot-like, as it usually is in the malignant tertian, but practically always rod-like. The nuclear chromatin is out of proportion to the volume of the parasite. It takes the form of bars or rods, strands, curves, forks, patches, etc.; the occurrence of the chromatin in a dot, as in the "ring" forms of other species, is rare. In the web-like protoplasmic processes mentioned above there may be seen several chromatin strands, and not uncommonly one observes a minute dot of chromatin some way from the parasite, or between two portions of the parasite, though the protoplasmic process connecting it with the main mass or masses is so thin as to be invisible. The chromatin masses are frequently angular, the angles jutting into the points at which an ameboid process is given off. Abundance of, and marked irregularity in distribution of, the chromatin masses are characteristic of this parasite.

British Journal of Children's Diseases, London

April, XI, No. 124, pp. 145-192

16 Study of Group of Cases of Chronic Recurrent Diarrhea in Childhood. (To be continued.) F. J. Poynton, R. R. Armstrong and D. N. Nabarro.
17 Mechano-Therapeutics of Chronic Infantile Paralysis (Poliomyelitis Anterior Acuta). E. F. Cyriax.
18 Suppression of Urine in Boy after Operation for Acute Appendicitis, Cured by Double Nephrotomy. A. Evans.
19 Retrospect of Otology, 1913. M. Yearsley.

British Journal of Surgery, London

April, I, No. 4, pp. 549-748

20 *Congenital Elevation of Scapula: Series of Eighteen Cases. H. A. T. Fairbank.
21 *Two Cases of Severe Unilateral Hematuria without Evident Cause. G. Barling.
22 Obscure Case of Ulceration of Nose in Child. Simulating an Epithelioma. D. Nabarro and T. T. Higgins.
23 *Traumatic Sensory Aphasia. V. Z. Cope.
24 *Typhoid Spine: With Report of Two Cases. S. J. Elkin and J. Halpenny.
25 Late Results of Three Cases of Transplantation of Fibula: with Remarks on Process of Growth and Physiologic Development of Transplanted Bone. C. J. Bond.
26 Radical Operation for Chronic Osteomyelitis. S. Pringle.
27 *Excision of Diaphysis of Humerus with Full Functional Recovery. A. J. Evans.
28 Two Cases of Injury to Pancreas. G. G. Turner.
29 *Acute Intestinal Obstruction Due to Rare Causes. J. Marnoch.
30 Loose Bodies in Knee: Special Reference to Their Etiology and Growth. R. H. A. Whitelocke.
31 Two Cases of Complete Division of Duodenum at Duodenojejunal Junction Treated by Closure of Divided Ends and Gastrojejunostomy. H. Collinson and L. R. Braithwaite.
32 Case of Intussusception of Vermiform Appendix. R. J. McConnell and W. Wilson.
33 Arterial Supply of Rectum and Pelvic Colon. H. Drummond.

20. **Congenital Elevation of Scapula.**—The chief features of the series of 18 cases of congenital elevation of the scapula analyzed by Fairbank may be summarized as follows: The sex of 8 was male, of 10 female. The right scapula was affected in 6 cases, the left in 9, while in 3 the deformity was bilateral. The scapula was anchored to the spine in 7 cases; in 2 of these, both scapulae were fixed, in one by a bridge of bone on both sides, and in the other by bone on the right and fibrous tissue on the left. Scoliosis was present in 10. In at least 4 a wedge-shaped half vertebra was present. In one of these, at the age of 2 years, there was no curve, but by 6 years a low dorsal curve, toward or rather below the elevated scapula, and quite unconnected with the half vertebra, had developed. In 5 the dorsal convexity was directed toward the raised shoulder, in 4 away from it, while in 1 case with an abrupt curve, both scapulae were elevated.

Partial fusion of ribs was seen in 7 cases, one of these being open to doubt. An unmistakable cervical rib was present in 2 cases only. In 2 there was total suppression of one or more vertebrae while in 4 cases, including the two just mentioned, there was present a half or wedge-shaped vertebra.

In 3 other cases the shortness of the neck made suppression of vertebrae more than probable, but the difficulties encountered in taking roentgenograms prevented a definite decision being arrived at. In 2 cases a projection or exostosis was present at the vertebral border of the scapula. With regard to other deformities present, 3 cases displayed torticollis, 2 of them having both scapulae elevated. The radius was absent in 1, the pectoral muscles were imperfect in 2, and facial asymmetry was noted in 2, only one of which was associated with torticollis.

21. **Severe Unilateral Hematuria.**—The control of the renal circulation during section of the kidney is obtained by Barling, by clamping the pedicle with rubber-covered forceps and placing several mattress sutures in the capsule, tightening them all simultaneously to take the strain off any individual suture and then tying them. When this has been done the clamp is removed and the kidney quickly replaced and compressed firmly inside the wound for several minutes with the hand over gauze pads; this Barling has generally found effective in stopping the bleeding.

23. **Traumatic Sensory Aphasia.**—According to Cope traumatic sensory aphasia is often, if not generally, due to subdural hemorrhage pressing on the cortical sensory speech centers. The aphasia affects the visual more than the auditory speech center. If treated expectantly, recovery is generally incomplete, and there is a risk of epileptiform convulsions developing later. Treatment by trephining and removal of the clot is the best course.

24. **Typhoid Spine.**—In 1909 Halpenny reviewed 72 cases of typhoid spine reported in the literature up to December, 1908. To this the authors add 20 cases reported since that time. These, with the 2 now cited, make 94 in all. A study of the cases since 1908 reveals the fact that when treatment is commenced early, spinal deformity rarely occurs, convalescense is short and recovery is nearly complete—that is, the movements of the spine approach more nearly to the normal.

27. **Excision of Diaphysis of Humerus.**—A female child, aged 5, was admitted to the hospital on Jan. 21, 1913. A week before admission she had fallen down-stairs, injuring her right arm. The case presented the obvious features of severe acute osteomyelitis involving the entire diaphysis. An incision was at once made down to the humerus and pus evacuated. The general condition of the patient was very critical at the time of admission, and therefore nothing more was done beyond employing free drainage. The local infective process appeared to have attacked both epiphyseal ends of the diaphysis simultaneously, the infection rapidly spreading up and down the bone.

March 3, 1913, the patient's general condition having improved, an incision was made through the deltoid muscle down to the bone, the shaft of which was found to be devoid of periosteum and surrounded by an irregular "involucrum" of new bone. The whole shaft, consisting of sequestrum and involucrum, was then withdrawn through the upper wound. The arm now consisted of nothing more than a flaccid tube of periosteum and granulation tissue, surrounded by the soft parts. It was placed in a specially moulded poroplastic splint fixed above to the axilla and below to the forearm at the elbow, the limb being so fixed that the muscles of the arm were fully extended and no contraction could take place. Drainage was provided above and below. The subsequent course of the convalescence was uneventful. Roentgenographic records, taken at regular intervals showed regeneration of bone taking place very rapidly along the whole length of the periosteal tube, the growth appearing as rapidly in the center of the limb as at its epiphyseal ends.

Twelve months after operation, the mobility of the shoulder and elbow-joint is unimpaired; full flexion and extension are present in the latter, while the movements at the shoulder are free in every direction. The right arm is shorter than the left to the extent of ⅝ inch; it is as strong and flexible as the other. The child can accomplish any sort of gymnastic exercise without pain or loss of power. The cosmetic result is excellent, the contour of the limb perfect, and the slight amount of shortening is difficult to detect, the healed scars being the only observable blemish.

29. **Acute Intestinal Obstruction.**—Four cases are reported by Marnoch. The first was caused by a volvulus of the cecum, the second by repeated operation for obstructive attacks due to congenital abdominal abnormalities; the third by an intersigmoid hernia and the fourth by a hernia into the paraduodenal fossa.

British Medical Journal, London

April 25, I, No. 2782, pp. 897-948

34 *Therapeutic Value of Gases Introduced into the Pleural Cavity. H. M. Davies.
35 *Need for Research in Antenatal Pathology. A. Routh.
36 Pituitrin in Labor. P. A. Hendley.
37 Two Cases of Pregnancy in Uterus Subseptus. R. C. Buist.
38 Carcinoma of Stomach: Gastrectomy. R. Jamison.
39 Association of Erythema Nodosum and Tuberculosis. Report of Six Cases. J. O. Symes.
40 Experiences of Surgeons in Sclerocorneal Trephining. R. H. Elliot.
41 Multiplication and Infectivity of T. Cruzi in Cimex Lectularius. B. Blacklock.

34. **Value of Gases Introduced into Pleural Cavity.**—Oxygen replacement according to Davies is not only of great value as a method of removing pleural effusions and exposing the lung for radiographic purposes, but it is the only efficient means we possess for the treatment of chronic cases of tuberculous pyopneumothorax. It is possible in these cases, by replacing the gas and fluid by oxygen, gradually to draw out the lung without producing any symptoms of distress or discomfort. The process must be repeated on three, four or even five occasions at intervals of two or three weeks, leaving on each occasion an increasingly high negative pressure. If the lung is completely fixed by adhesions, it cannot be made to reexpand, but it will be found that the tendency for the fluid (at first pus, and then serum) to reaccumulate will rapidly diminish—a state of affairs which is greatly appreciated by the sufferer.

35. **Need for Research in Antenatal Pathology.**—Routh urges obstetricians to look on research into antenatal pathology as only one of the methods which must be advocated in order to deal with statistics, and with the supply of material for research and for help in the diagnosis, prophylaxis and treatment of antenatal diseases, for without associated methods any large reduction of the antenatal death-rate is impossible.

Journal of Laryngology, Rhinology and Otology, London

April, XXIX, No. 4, pp. 169-224

42 Intranasal Treatment of Lachrymal Disease. D. R. Paterson.
43 Histology of Enucleated Tonsils. W. Wingrave.
44 Reports for Year 1913, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. K. M. Dickie.
45 New Theory of Hearing. F. P. Sturm.

Journal of Obstetrics and Gynecology of British Empire, London

March, XXV, No. 3, pp. 113-174

46 Uncontrollable Uterine Hemorrhage. Functional Disturbance. H. Briggs and R. A. Hendry.
47 Stillbirths Registration. J. W. Ballantyne.
48 Case of Chorionepithelioma Presenting some Unusual Features. H. Williamson and C. Noon.
49 Ectopic Pregnancy Occurring Twice in Same Patient. D. Dougal.
50 Left Parovarian Cystoma Causing Torsion of Fallopian Tube, Pedicle Containing Fallopian Tube, Fimbria Ovarica and Mesosalpinx. G. B. Marshall.
51 Early Tubal Gestation in Malformed Right Tube. Uterine Fibroid. Large Cystic Ovaries. G. B. Marshall.

Journal of Tropical Medicine and Hygiene, London

April 15, XVII, No. 8, pp. 113-128

52 Certain Protozoa-Like Bodies in Case of Protracted Fever with Splenomegaly. A. Castellani.

Lancet, London

April 25, I, No. 4730, pp. 1163-1232

53 Modern Theories Concerning Hysteria. J. A. Ormerod.
54 Intestinal Toxemia. D. C. Watson.
55 *Drainage Tube in Abdominal Surgery. J. E. Adams.

56 Wild Monkey as Reservoir for Virus of Yellow Fever. A. Balfour.
57 *Vaccination against Hay-Fever. J. Freeman.
58 Use of Omnopon Scopolamine Combined with Local Anesthesia in Ophthalmic Surgery. A. M. Ramsay.
59 Extraperitoneal Ureterolithotomy Through Median Suprapubic Incision. G. Whitehead.

55. **Drainage Tube in Abdominal Surgery.**—Owing to the adhesions which rapidly form around drainage tubes Adams claims their value is distinctly limited in the treatment of peritoneal infections. Since the tissues of the abdominal wall possess a much lower degree of resistance than the peritoneum, drainage of the former may frequently be called for where drainage of the peritoneum is not necessary. The presence and pressure of a drainage tube in peritonitis may determine the transudation of organisms from the lumen of the gut to the peritoneal cavity. This secondary infection is of less serious importance than might be supposed owing to the fact that the wound area has usually been shut off by surrounding adhesions before this occurs. To prevent adhesions between drainage tubes and adjacent structures the tube should always be rotated whenever the dressing is done, and its gradual withdrawal from the wound should be begun from the third day after operation. Gauze drains, Adams believes, are more properly termed gauze dams, except when used in the form of a small wick down the lumen of a tube as a "cigarette drain," and there the capillary action of the gauze may be of value in securing the escape of thin inflammatory fluid. In the case of thick pus they more often act as a cork at the orifice of the wound than as an external drain.

57. **Vaccination against Hay-Fever.**—Hay-fever treatment by active immunization with a pollen vaccine whether judged by statistics or by the experiential method, Freeman says, has succeeded, and the immunity thus acquired seems to last for one year at least after treatment has been discontinued.

Annales de Médecine et Chirurgie Infantiles, Paris

April 15, XVIII, No. 8, pp. 249-284

61 Social Service in the Hospitals. Nageotte-Wilbouchewitch.
62 Infant Welfare Work. (La pouponnière de la clinique médicale infantile à l'hôpital de Nancy.) G. J. Ramu.
63 *Prophylaxis and Treatment of Functional Heart Disorders in Children. Nobécourt.
64 Direct Sunlight in Treatment of Internal Diseases. (Héliotherapie.) Delachaux.

63. **Prophylaxis and Treatment of Functional Heart Disturbance in Children.**—Nobécourt emphasizes the importance of the injury liable to be felt by the cardiovascular apparatus from a too sedentary life, unhygienic attitudes in school and overstudy. Sitting still too long and lack of exercise increase the work of the heart as they reduce the activity of the peripheral circulation, while contributing to constipation, anemia and dyspepsia, all of which in turn react on the heart. Mild muscular exercise counteracts all these, but if the exercise is excessive or too long continued the children suffer equally from the other extreme. The circulation in children adapts itself with extreme facility to variations in movement, but prolonged effort is impossible and especially injurious if persisted in. Walking, to be a useful exercise, should be brisk and kept up for some time. It is not always good for children, and often entails a more or less durable dilatation of the heart. Games and sports should not be allowed to become competitive battles.

Gymnastic exercises are often directly injurious; the holding of the breath retards the circulation and fosters congestion. Swedish gymnastic exercises affect the circulation favorably but children find them tedious. Mental work dilates the carotid arteries; the heart-beat is liable to become accelerated, and the radial pulse smaller while the blood-pressure rises. He adds that when there is already some functional heart disturbance, there is still greater need to supervise the physical exercise, graduating it to the special case, as the main therapeutic reliance, supplemented by hydrotherapeutic measures, massage, care in the diet and measures to soothe the nervous system, respiratory exercises, etc. Abnormal excitability of the heart may be combated by valerian and belladonna, alternating each for twenty days. Or atropin can be given in the daily dose of a tenth of a milligram for each year of age. This is especially useful in paroxysmal tachycardia.

Archives des Maladies du Cœur, etc., Paris

April, VII, No. 4, pp. 225-288

65 Regional Myocarditis; Six Cases. E. Lenoble.
66 Electric Action of the Human Heart. (Action électrique du cœur humain.) A. D. Waller.

Bulletin de l'Académie de Médecine, Paris

April 7, LXXVIII, No. 14, pp. 523-544

67 *Treament of Acute Poliomyelitis with Serum from Persons Who Have Had Epidemic Poliomyelitis. A. Netter.
68 Prevalence of Eruptive Diseases in the Army Determined by Immunity Previously Acquired. (Causes de l'absence d'épidemies de fièvres éruptives dans le Ier corps d'armée et de son bon état sanitaire général.) G. H. Lemoine.
69 Raphael's Last Illness, Death at 37. (Conjectures sur la mort de Raphael.) Cabanès.

April 14, No. 15, pp. 545-588

70 Various Therapeutic Applications of Emetin and Ipecac. L. E. Bertrand.
71 Pneumococcus Thrombosis of Cerebral Arteries. P. Menetrier.
72 *Gymnastics of the Blood-Vessels by Alternating Hot and Cold Bath. (La gymnastique vasculaire par le bain progressif alternant.) Dausset and A. Hanriot.
73 Therapeutic Paraffin Baths. (Kérithérapie.) B. de Sandfort.
74 *Action of Antirennin on the Digestibility of Milk. L. Gaucher.

67. **Serotherapy of Acute Poliomyelitis.**—Netter makes intraspinal injections of the serum from persons who have had poliomyelitis at some time in the past, assuming that the serum contains antibodies which will have a therapeutic action. In one case reported an athletic man of 34 developed severe acute poliomyelitis but was apparently recovering when the eighth day his legs became paralyzed, with retention of urine and loss of sensibility up to the costal arch, all showing a progressive course, with an extremely serious outlook. The next morning 7 c.c. of serum from a person who had had poliomyelitis seven years before were injected into the spinal cavity. By this time the anesthesia reached to the nipples, but by evening of the same day the patient could "feel his toes," and complete recovery gradually followed. He was given ten injections in eleven days, a total of 66 c.c. The serum came from eight persons. Netter has applied this treatment before in four other cases, but with such timid technic and so few injections that although marked benefit was apparent each time yet some paralysis was left or the patients succumbed sooner or later.

72. **Alternating Hot and Cold Bath.**—Dausset and Hanriot recorded the blood-pressure, etc., in a healthy person in a warm bath; then hot water was added to bring the water to 42 or 50 C. After one or two minutes of this, cold water was added until the temperature was felt too cold. The vascular system is exercised to a remarkable extent by these temperature changes in the twenty-minute bath, but the changes are so gradual that there is no sudden shock. They say that oxidation processes are promoted, heat production is regulated, and sluggish elimination whipped up while the reflexes are brought back into physiologic limits.

74. See Paris Letter, May 9, p. 1488.

Journal de Médecine de Bordeaux

April 12, LXXXV, No. 15, pp. 245-258

75 Weaning the Baby. (Sur quelques points relatifs au sevrage.) E. Leuret. Commenced in No. 14.

April 19, No. 16, pp. 261-274

76 Hypochondriac Paranoia. (Histoire d'un délire de persécution à base d'hallucinations cénesthésiques.) Authier and R. Lafargue.

Lyon Médical, Lyons

April 5, XLVI, No. 14, pp. 749-804

77 Puzzling Disturbances from Cervical Ribs in Elderly Woman. C. Lesieur, Kocher and Milhaud.

April 12, No. 15, pp. 805-860

78 Prolonged Priapism Unaffected by Medical Treatment; Cured by Incision and Drainage of the Corpora Cavernosa. A. Chalier and J. Gaté.
79 Coma without Acetonuria in a Case of Diabetes. Revillet.

Presse Médicale, Paris

April 15, XXII, No. 30, pp. 285-292

80 *Pressure on the Spinal Cord from Bony Excrescences on the Spine. (Compressions de la moelle et de la queue de cheval par exostoses vertébrales.) P. Le Damany.
81 Diagnosis of Alopecia in Children. R. Burnier.

April 18, No. 31, pp. 293-300

82 Tuberculosis Primary in the Child; Reinfection in the Adult. (Les étapes de la bacillose de Koch chez l'homme.) L. Bernard.

80. **Vertebral Exostoses.**—Le Damany remarks that these excrescences are comparatively frequent; Regnault found them on sixteen of sixty-three cadavers examined, but as they usually grow outward they cause no nervous disturbances. In a case of his own, however, roentgenoscopy showed that the growth was compressing the cauda equina, explaining the clinical picture. The symptoms in these cases come on extremely gradually, and after removal of the growth they retrogress nearly as slowly. In his case months elapsed before the symptoms subsided, but this rendered all the more remarkable the fine result finally realized. The first symptoms had been pain in the legs which had been ascribed to and treated as sciatica without benefit. The man was given a course of treatment for syphilis, although the Wassermann test was constantly negative. By the end of the year the pains and motor disturbances indicated plainly pressure on the cauda equina, and the exuberant bone growth was removed by resection of the posterior arches of the third and fourth lumbar vertebrae.

Revue Mens. de Gynécol., d'Obstétrique et de Pédiatrie, Paris

March, IX, No. 3, pp. 161-232

83 *Removal of Ovaries Cures Hemorrhage from Myomas. (Valeur actuelle de la castration ovarienne dans les hémorragies des fibromyomes. Opération d'Hégar.) G. de Rouville.
84 Anatomy and Physiology of Normal Infants. (L'enfant dans les deux premières années.) L. Devraigne.
85 *Articular Rheumatism and Endocarditis of Puerperal Origin; Recovery after Curetting. L. Pierra.

83. **Ovariectomy for Hemorrhage from Myomas.**—De Rouville has removed the ovaries for this cause in seven cases, the hemorrhages for which the fibromyomas were responsible being extremely severe and the patients too anemic to stand hysterectomy. The bleeding stopped at once after the castration. There was no recurrence except very slight in one case.

85. **Articular Rheumatism of Puerperal Origin.**—The case reported by Pierra shows anew how infection originating in the genital organs may work insidiously for several months before making itself apparent. It demonstrated further that a cure may be realized even at this late stage by eradicating the focus. His patient was a woman of 28 who developed subacute articular rheumatism and endocarditis five months after an infected abortion. No benefit was realized from a month or more of the ordinary measures, including the salicylates, but after straightening and curetting the uterus the temperature dropped to normal and rapid recovery followed, except that signs of mild mitral insufficiency still persist to date. The patient has passed through a normal pregnancy since. Articular rheumatism of puerperal origin does not attack so many joints as ordinary articular rheumatism. It generally settles down in one joint after a time—the shoulder in his case—and stays there. The rapid development of the mitral insufficiency in this case could be explained only by the slumbering infectious process in the uterus.

Semaine Médicale, Paris

April 22, XXXIV, No. 16, pp. 181-192

86 Differentiation between Peripheral and Central Paralysis of Auditory Nerve. (De la perception des mouvements de rotation dans le syndrome des tumeurs du nerf acoustique et de l' "hémiavestibulie" de siège central.) L. Bard.

Archiv für Verdauungs-Krankheiten, Berlin

XX, No. 2, pp. 147-298

87 Pathologic-Anatomic Study of Experimental Beriberi. (Reispolyneuritis.) K. Schnyder.
88 Primary Gastric Sarcoma. M. Schiller.
89 Pancreatic Diseases; Five Cases. G. A. Friedmann (New York).
90 *The Vitamins and Subjective Factors in Eating. (Diät und diätetische Behandlung vom Standpunkte der Vitaminlehre und vom Standpunkte der Lehre der diätetischen Küche.) W. Sternberg.
91 Unreliability of the Glycyltryptophan Test for Gastric Cancer. B. Hauschild.
92 Nut Milk in Digestive Diseases, etc. (Neuere Gesichtspunkte für die diätetische Behandlung des Ulcus ventriculi und duodeni, der Hypersekretion, der motorischen Insuffizienz, einiger Stoffwechsel- und Ernährungsstörungen, Herz- und Nierenerkrankungen, mit vegetabler Milch.) A. Fischer.

90. **Importance of Subjective Factors in Eating.**—Sternberg has long been preaching that food is liable to fail of its chief purposes unless it appeals to the senses of sight, smell and taste, with variety in the mode of preparation, appetizing seasoning and the dishes freshly prepared. He thinks that much of what we are now calling "vitamins" is included in the above. He has long been reiterating that the housekeeper's main dietary task is to cultivate the subjective factors, but as a rule this is disregarded as of little moment. He insists that our senses of smell and taste recognize chemical changes more sensitively than we can detect them with chemical tests. Warmed-over dishes, especially vegetables, do not relish as at first; some chemical change has occurred in them. This change has rendered them less wholesome for the person who finds them less palatable. Loss of appetite, disgust, nausea, vomiting and finally some dietary deficiency disease, form the sequence, and loss of relish should warn that we have entered on the downward slope. Sternberg emphasizes anew that the science of cooking is far more than merely applied chemistry and physics and application of heat. It is rather applied physiology of the senses, applied esthetics and applied psychology. It is a matter of taste in the widest sense of the term.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXX, No. 2, pp. 227-362. Last indexed April 11, p. 1204

93 *The Development and Spread of Pulmonary Tuberculosis . (Pathologisch-anatomische und klinische Betrachtungen der Lungenphthise.) K. Nicol.
94 Gold Cantharidin and Tuberculosis. T. Spiess and A. Feldt.
95 *Protest against Newspaper Misstatement Regarding Friedmann Treatment. Pischinger, Ritter and Schellenberg.

93. **Development of Pulmonary Tuberculosis.**—Nicol's long article is accompanied with thirteen plates, one colored, ten illustrations in the text and a chart proposing a more accurate system of nomenclature, based on his research here reported. It has demonstrated, he says, that the tuberculous process in the lung spreads from above downward, and that the outlook is more unfavorable the lower its location.

95. **Protest.**—The officers of the German association of sanatorium physicians (Vereinigung der Lungenheilanstaltsärzte) here repeat their official protest against misleading statements in the lay press in regard to their attitude toward Friedmann's remedy for tuberculosis. They state that at their recent annual meeting at Berlin about half of the members went in a body to Friedmann's quarters to inquire about his remedy and see its mode of use. Few had used the remedy and they only on a very limited scale, and after their call on Friedmann many expressed great doubt in regard to the "success" claimed by Friedmann. An exaggerated account of the call appeared at once in some American papers, claiming that the entire association had visited Friedmann, that the members had reported treatment of 40,000 patients with the remedy, and that the results were phenomenal, the association tendering Friedmann a banquet—none of which they reiterate is true. (See The Journal, April 18, 1914, p. 1273.)

Beiträge zur klinischen Chirurgie, Tübingen

XC, No. 1, pp. 1-246

96 Experimental Production of Gastric and Duodenal Ulcers. W. Gundermann.
97 Tubercle Bacilli in the Blood-Stream with Surgical Tuberculosis. W. Haas.
98 Treatment of Appendicitic Peritonitis. Haeberlin.
99 Elephantiasis of the Penis Successfully Treated by Draining into Abdominal Wall with Implanted Veins. S. P. Janssen.
100 Cystic Fibrous Ostitis of the Skull. P. Frangenheim.
101 Familial Bone Growth on the Jaws. (Hyperostosen der Kiefer.) P. Frangenheim.
102 Intra-Osseous Hygroma. P. Frangenheim.
103 Roentgenotherapy of Actinomycosis. E. Sardimann.
104 Xanthomas of Skin and Tendons. H. Hoessli.
105 Electric Injuries of the Skull. (Schädelverletzungen durch elektrischen Starkstrom.) G. Langer.

Berliner klinische Wochenschrift

April 20, LI, No. 16, pp. 725-772

106 Survival of Mouse Cancer Cells at Incubator Temperature. (Lebensdauer der Mäusecarcinomzellen bei 37 C.) B. R. G. Russell and W. E. Bullock.
107 Infant Feeding with Pulverized Vegetables, etc. (Ueber Säuglingsernährung nach physiologischen Grundsätzen mit Friedenthal'scher Kindermilch und Gemüsepulvern.) H. Friedenthal.
108 *Influence of Hydronephrosis on Infection of the Kidney. (Harnstauung und Niereninfektion.) H. Harttung.
109 Microscopic Anatomy of Skin of Egyptian and Peruvian Human and Animal Mummies. (Aelteste Säugetier- und Menschenhaut.) J. Heller.
110 *Lack of or Excess of Iodin as Factor in Thyroid Disease. (Zur Theorie von Morbus Basedowii, Myxödem, Kretinismus und Gebirgskropf. Hyper- und Hypothyreodismus.) Grumme.
111 Absorption of Beta, Gamma and Roentgen Rays. B. Keetman.
112 Present Status of Intratracheal Insufflation. S. J. Meltzer. Commenced in No. 15.
113 Orthopedic Welfare Work for Schoolchildren at Berlin. M. Böhm.

108. **Stasis in the Kidneys and Infection.**—Harttung threw a ligature around a rabbit ureter and studied the changes which followed in the kidney above. Staphylococci injected intravenously passed through the sound kidney without apparently injuring it, but in the kidney with ligated ureter severe lesions developed in all. The stasis in the kidney injures its tissues so that they become abnormally permeable for bacteria.

110. **Lack or Excess of Iodin as Factor in Thyroid Diseases.**—Grumme presents arguments to sustain the view that a lack of metabolized iodin is the cause of myxedema, while exophthalmic goiter is the result of an excess of non-metabolized iodin. In other words, the primary cause of myxedema is a deficiency of iodin in the food, while the cause of exophthalmic goiter is a functionally weak thyroid with a sufficiency or an excess of iodin in the food. Experience has already demonstrated that cretinism, myxedema and endemic goiter are favorably influenced by administration of organic thyroid-iodin or thyroid extract. On the other hand, iodin in any form, organic or inorganic, or food containing iodin, is distinctly injurious in exophthalmic goiter, and also in ordinary goiter, not of the endemic type, but which is often a preliminary phase of exophthalmic goiter. Endemic goiter can thus be effectively treated with iodin but it is strictly contra-indicated in the sporadic form outside of the mountains.

Deutsche medizinische Wochenschrift, Berlin

April 16, XL, No. 16, pp. 785-832

114 *Treatment of Acute Threatening Conditions in Tropical Diseases. P. Mühlens.
115 Dissolving Action of Carlsbad Water by the Mouth on Human Gall-Stones Implanted in Dog's Gall-Bladder. (Gallensteinlösende Wirkung des Karlsbader Wassers.) H. Leo.
116 Acute Articular Rheumatism a Streptococcus Pyemia. (Zur Aetiologie des akuten Gelenkrheumatismus.) G. Singer.
117 Levulose Test of Functional Capacity of the Liver. T. Arai.
118 *Non-Operative Treatment of Cancer. (Weitere Erfahrungen bei der nicht operativen Behandlung des Krebses.) Krönig and Others. Commenced in No. 15.
119 Treatment of Febrile Abortion. (Wie kann man üble Ausgänge bei fieberhaften Aborten am besten vermeiden?) W. Benthin.
120 *Iodin in Treatment of Arteriosclerosis. J. Schwalbe. Commenced in No. 15.
121 Testimony of the Physician as Witness and Expert. (Der Arzt als Zeuge und Sachverständiger.) Seeger.
122 From the Balkan Wars. (Kriegschir. Ergebnisse aus dem Balkankrieg, 1912-13.) L. Dreyer. Commenced in No. 14.

April 23, No. 17, pp. 833-888

123 *Clinical Experience with Friedmann's Remedy for Tuberculosis. (Klinische Erfahrungen mit dem Friedmannschen Tuberkulose-Heilmittel.) L. Brauer, Gaugele and O. Schüssler.
124 *Lupus and Friedmann's Remedy for Tuberculosis. (Behandlung des Lupus mit dem Friedmannschen Tuberkulose-Heilmittel.) A. Brauer.
125 *Bacterial Contamination of Friedmann's Remedy for Tuberculosis. Biermann.
126 Treatment of Tuberculosis with Turtle Tubercle Bacilli. (Zur Behandlung der Tuberkulose mit Schildkröten-Tuberkelbazillen.) M. Piorkowski.
127 Inflammation and Mechanical Obstruction as Factors in Jaundice. (Wodurch entsteht vorwiegend der reell-lithogene Ikterus?) B. Riedel.
128 Combined Salvarsan-Mercury Treatment of Syphilis. W. Scholtz.
129 *After-Pain with Operations under Local Anesthesia. (Nachschmerz.) A. Schlesinger.
130 Serious Disturbances from Glycerin-Filled Bladder Used as Metreurynter. (Zur Ballonbehandlung mit tierischen Blasen.) K. Frankenstein.

114. **Acute Threatening Conditions in Tropical Diseases.**—Mühlens emphasizes that we have now in salvarsan a powerful aid in combating relapsing fever. Given in time the severe symptoms subside at one stroke. He says that the confidence in salvarsan is now so great that in research at Tunis men deliberately inoculated themselves with relapsing fever by means of infected lice, the disease being promptly aborted with salvarsan as soon as it developed. He advises an intravenous dose of from 0.2 to 0.5 gm. according to age. One injection is generally enough to prevent recurrence, but a second, six or eight days later, will clinch the matter. When salvarsan or neosalvarsan is not available, symptomatic measures must be the reliance. Stimulants and saline infusion may be urgently needed at the beginning of the crisis on account of the danger of heart failure. He warns further that in the second stage of sleeping sickness, the patient must be constantly supervised on account of the tendency to suicide or homicide.

118. **Non-Operative Treatment of Cancer.**—The Freiburg clinic seems to have carried radiotherapy of cancer farther than has been done elsewhere, and this communication analyzes the experiences from the clinical, experimental and physical standpoints. The best results were always obtained when the dosage was as large as possible and crowded into the shortest possible time. It is thus possible to induce the complete retrogression of deep-seated cancers without noticeable injury of sound tissue, and in some cases two years have elapsed without sign of recurrence. Krönig and his coworkers prefer the radiotherapy even for operable cases if conditions permit effectual cross-fire application of the Roentgen or mesothorium rays. Time alone will decide whether the tendency to recurrence is greater or less with radiotherapy. They insist that after operative removal of a cancer the region should be exposed to the rays at regular intervals for two years at least.

120. **Influence of Iodin on Non-Syphilitic Arteriosclerosis.**—Schwalbe sent a question-blank to a number of leading German clinicians to inquire their views on and experience with iodin in treatment of arteriosclerosis. He summarizes their answers, commenting on the wide divergence of ideas and technics, and emphasizing that none seemed to have a scientific basis for the use of iodin in arteriosclerosis. On the other hand, there seem to be so many drawbacks to the method, so much danger of injury from the iodin, especially in regions where goiter is common, that he sums up his conclusions in a solemn warning against the routine use of iodin or iodids in non-syphilitic arteriosclerosis.

123-125. **Friedmann's Remedy for Tuberculosis.**—Here are the five articles relating experiences with this remedy which were summarized from advance sheets in the Berlin Letter, dated April 16. Biermann says he found the contents of the ampules contaminated with apparently pyogenic germs but they did not prove pathogenic when animals were inoculated with them. L. Brauer's impressions of the remedy were decidedly unfavorable, severe reactions being observed, and he knows of one person in Germany and two in Switzerland who died in a few days after the injection with its severe reaction. One of Hegler's patients had a chill, fever and extreme prostration after the injection, rapidly wasting away after it and dying in six weeks. Brauer reiterates that nothing was observed to indicate a favorable influence from the treatment, while the contamination with other microbes renders this method of treatment a hazardous experiment. Gaugele and Schüssler analyze their experiences with thirty-four children. One child died of miliary tuberculosis, and they say that the end seemed to have been hastened by the remedy. In 21 cases there was much suppuration, with high fever, and in 13 cases considerable infiltration but no actual abscess. They add that since the abscesses have healed the general condition seems improved. The children's appetite is better than before the injections, but no change can be detected with roentgenoscopy of the bone and joint processes and there has been no modification in the reaction to the tuberculin tests. A. Brauer reports the intramuscular application of the remedy in lupus and states that benefit was

apparent in every case and with all forms of lupus, but that the improvement lasted only for ten or fourteen days, in no instance longer than three weeks. After a few weeks of apparent inactivity the affection seemed to become aggravated. In none of the cases by the end of the sixth week was the condition so good as in the cases given the ordinary local treatment for the same length of time. He thinks that the lack of durable effectual action on the visible lupus lesions is an intimation that internal lesions are not liable to be affected any more favorably.

129. **After-Pain Following Operations Under Local Anesthesia.**—Schlesinger says that it is the amount of fluid rather than the anesthetic which causes the pain, and that it is liable to be more severe in dense and tightly stretched tissues, other things being equal. Different persons vary in their sensation of pain, but he advises against injecting any fluid into inflamed tissues as this is almost certain to entail severe after-pain. The unusual number of nerve terminals and the compact, tightly stretched tissues render the after-pain peculiarly intense and tenacious with operations on the finger and toes. The local anesthetic should be injected into the loose tissue at the base of and between the fingers. When this is not possible, the amount of fluid used should be reduced to the minimum. An operation on a dermoid in the cheek, or a furuncle on the arm, with no zone of inflammation around it, is scarcely liable to entail after-pain. When the nature of the tissues renders it probable, it is better to refrain from local anesthesia or else give some sedative beforehand.

Medizinische Klinik, Berlin

April 19, X, No. 16, pp. 665-710

131 Present Status of Research on the Protective Ferments. (Abwehrfermente.) E. Abderhalden.
132 *Muscular Rheumatism and Neuralgia. A. Schmidt.
133 Lymphogranulomatosis Developing from Acute Hyperplastic Conjunctivitis. A. Elschnig.
134 Pathogenesis of Cholelithiasis. K. Grube.
135 Influence of Circular Resection of Stomach on Its Secretion and Motor Functioning. M. Faulhaber and E. v. Redwitz.
136 Electric Exercising of the Muscles in Treatment of Obesity. (Muskelarbeit in der Behandlung der Fettsucht.) Forschbach.
137 Organ Therapy and Prophylaxis of Postoperative Tetany. K. Vogel.
138 Modification of Electrocardiogram by Carbonated Baths in Heart Disease. K. Brandenburg and A. Laqueur.

132. **The Problem of Muscular Rheumatism.**—Schmidt is convinced that the majority of cases of pain in muscles and nerves are of infectious or toxic-infectious origin. He has been confirmed in this view by the frequent complete cure of old rebellious myalgia and neuralgia after removal of the tonsils or evacuation of an empyema. The sudden onset of lumbago or the like after an abrupt movement he explains as the injury from the toxin on the fibers strained by the movement. Muscular rheumatism is in reality merely a neuralgia of the sensory nerve fibers in the muscle. He found among fifty cases of sciatica that in 86 per cent. other muscles or nerve domains were painful, spontaneously or on pressure, as well as the sciatic domain. There was pain in the lumbar region in 54 per cent. and in the femoral nerve region in 22 per cent. The knee-jerk was lost in 16 per cent. As the legs are used so much more than the arms, the greater chance for overstrain explains the predilection of the so-called muscular rheumatism for the legs.

Mitteilungen a. d. Grenzgebieten der Med. und Chir, Jena

XXVII, No. 4, pp. 575-806. Last indexed March 7, p. 817

139 *Chronic Tetany after Removal of Parathyroid Glands in Animals. A. Tanberg.
140 *Tuberculin Tests of Animals after Inoculation. (Die subkutane und die intrakutane Tuberkulininjektion als Mittel zur Diagnose des Tuberkelbacillus im Tierversuche.) M. Jacoby and N. M. Wildungen.
141 Double Refracting Lipoids in the Mesentery and in a Mesenteric Sarcoma. W. Lutz.
142 *Leukocytosis with Hemorrhage in the Peritoneum. H. Hoessli.
143 *Experiments with Coagulation-Promoting Substance Derived from Animal Blood-Platelets. (Wirkung der intravenösen und der subkutanen Injektion von Koagulen Kocher-Fonio am Tierversuch, nebst einigen therapeutischen Erfahrungen.) A. Fonio.
144 *Cause of Gastric Ulcer. (Ursache des runden Magengeschwüres.) J. K. W. Kehrer.
145 *Pathologic Anatomy of Exophthalmic Goiter. (Morbus Basedowii.) C. A. Pettavel.
146 Experimental Cirrhosis of the Liver. Induced by Alcohol. K. Isobe.
147 *Pathologic Anatomy of Circumscribed Ossification in a Muscle. (Myositis ossificans.) G. B. Gruber.
148 Experimental Study of Gall-Bladder Functioning. (Zur Funktion der Gallenblase.) P. Klee and O. Klüpfel.
149 *Splenectomy for Blood Disease. H. Eppinger and E. Ranzi.

139. **Tetany after Parathyroidectomy.**—Tanberg succeeded in inducing chronic tetany in animals by removing some of the parathyroids; in some there was a period of several months of latency before the symptoms developed. A meat diet did not seem to influence the tetany but a milk diet had an unmistakably favorable action. Milk apparently contains substances which modify the tetany under these conditions. Benefit was likewise manifested on feeding beef parathyroid glands.

140. **Tuberculin Tests of Animals after Diagnostic Inoculation.**—As early as two weeks after inoculation of the guinea-pig with the suspected sputum or other material, the animal may react to a subcutaneous injection of tuberculin in case of positive findings. Intracutaneous injection of the tuberculin answers the same purpose although the findings are less objective. If a negative response is obtained, the procedure should be repeated a few days later to make sure.

142. **Leukocytosis with Intraperitoneal Hemorrhage.**—Hoessli found 30,000 leukocytes in a previously healthy young woman suddenly taken with symptoms suggesting rupture of a gravid tube, confirmed by immediate operation, with prompt recovery, the leukocytes numbering 8,000 the tenth day. Three similar cases are reported in which the leukocytes ran up to 15,000 or 19,000 in twenty-four hours after the first signs of trouble. Extra-uterine pregnancy was regarded as probable in all but one case in which the symptoms and intact hymen spoke for appendicitis, but the trouble proved to be a ruptured blood-cyst in the right ovary. Some experiments on animals confirmed the fact that sudden large influx of blood into the peritoneum is liable to induce high leukocytosis for about twenty-four hours, even in the absence of all inflammation.

143. **Coagulation-Promoting Substance.** — Blood-platelets from animals, obtained by fractioned centrifuging, sterilized by heat and desiccated, may be dissolved as needed and injected to arrest hemorrhage. This substance has been in use at Kocher's clinic for over a year and Fonio here analyzes the experience with it, showing that it answers the physiologic requirements better than any other method of arresting hemorrhage except transfusion of blood. It has the advantage over the latter that it supplies only the one element needed, and that the doses can be graduated. The method is still in the tentative stage. Various by-effects are observed showing that the best method of administration has not yet been worked out. The pulse and temperature ran up regularly after intravenous injection and sometimes there were pains in the heart region, dizziness, vasodilation in face and neck and headache. By administering part of the solution by subcutaneous injection, the by-effects were much reduced. The more blood the patient has already lost, the smaller the dose required.

144. **Gastric Ulcer.**—Kehrer recalls that pain in the stomach may be due merely to contraction of the muscle, and his experiments on dogs have demonstrated that the expulsion of the blood from the contracted portion of the muscle renders it defenseless against the corroding action of the gastric juice and erosion may occur with its sequel of ulceration. This is especially liable when the muscular contraction occurs predominantly in the pylorus region.

145. **Pathologic Anatomy of Exophthalmic Goiter.**—This fifty-four page article from Kocher's clinic reviews the findings in eight additional exophthalmic goiter cases, the patients from 22 to 49 years old. Three of the patients had died during an operation on the goiter and the others had died of intercurrent disease but of such mild nature that the exophthalmic goiter must be regarded as the actual

cause of death. Considering these cases with a previous series of four, he states that 80 per cent. of those who died in connection with the operation had an abnormally large thymus—a mixed hyperplasia—as also 66.6 per cent. of those succumbing to mild intercurrent disease. Thus the thymus was of normal size in 25 per cent. of the total material. Dilatation and hypertrophy of the heart was the rule, but in one of the severer cases the heart was of normal size. Both liver and kidneys showed fatty degeneration in all the cases, and the chromaffin system showed hypoplasia. The blood findings confirmed Kocher's typical blood-picture, the leukocytes ranging from 4,300 to 8,800; the neutrophils from 36.7 to 71 per cent. and the lymphocytes from 24.3 to 58.6 per cent. although three of these patients had no signs of the lymphatic status and two only slight indications of it. No connection was apparent between the lymphocytosis and persisting thymus.

147. **Ossifying Myositis.**—Gruber adds twelve more to the seven cases he has already published in which there was bone-production in muscle tissue. Some acute or chronic trauma seems indispensable for this chronic osteoplastic myopathy.

149. **Splenectomy in Blood-Diseases.**—The twenty-two cases on record are tabulated and compared and the remarkably favorable influence of the splenectomy is emphasized in the three types of blood disease represented by hemolytic jaundice, cirrhosis of both spleen and liver, and pernicious anemia. In cases of thrombophlebitic enlarged spleen, splenectomy seems to offer little chance for benefit unless one's hand is forced by severe hemorrhages in the gastro-intestinal canal.

Monatsschrift für Kinderheilkunde, Berlin

XII, No. 10, pp. 603-644

150 Eosinophilia and the Exudative Diathesis. A. K. Lifschütz.
151 *Latent Tuberculosis in Infants. T. A. Ossinin.
152 Pedagogic Treatment of Incontinence of Urine and Feces and for Psychopathic Inferiority, etc. J. Girstenberg.

No. 11, pp. 645-686

153 Organic Acids in the Urine of Infants. H. Aron and M. Franz.
154 Leishman's Anemia in Children at Palermo; 110 Cases. R. Jemma.
155 *Transmission of Scarlet Fever by Patients after Discharge from the Hospital. W. Knopfelmacher and R. Hahn.

151. **Latent Tuberculosis in Infants.**—Pathologic anatomists agree that latent tubercular foci are often found in children. Ossinin, in order to determine how frequent they are, examined the bodies of 100 children under 9 months of age. He examined the bronchial, tracheal and mesenteric lymph-nodes by treatment with antiformin, histologic examination and inoculation in guinea-pigs. In ninety-seven cases the results were negative by all three methods. In the other three cases, macroscopic and microscopic examination was negative and there had been no clinical symptoms of tuberculosis, but the antiformin examination and guinea-pig inoculation were positive. That is, there was latent tuberculosis in 3 per cent. of the cases. In all the cases it was in the bronchial and tracheal glands, and not in the mesenteric. This seems to confirm the belief that the respiratory tract is the chief portal of entry for tuberculosis.

155. **Prophylaxis of Return Cases of Scarlet Fever.**—A considerable number of scarlet fever patients after their discharge from the hospital infect other members of the family. The percentage varies according to different authors and in different epidemics from 3 to 10. This may be due to the fact that the patient still carries his own virus or that he acts as a carrier of infection from other patients with whom he has come in contact. Knopfelmacher and Hahn say that the latter would seem to be more generally true, as this form of infection is more frequent in hospital cases than in those treated at home. Therefore our quarantine regulations do not seem to be sufficient. The best thing would be to isolate all cases in separate rooms for twenty days; but this is costly and difficult to enforce. It is therefore recommended that after the disappearance of acute symptoms the patients be placed in a common convalescent room, but not allowed to come again into contact with acute cases.

Münchener medizinische Wochenschrift

April 14, LXI, No. 15, pp. 801-856

156 The Protective Ferments Are Amboceptor Bodies. (Natur der sog. Abwehrfermente.) R. Stephan.
157 Further Research on Protective Ferments. (Nachweis der Wirkung proteolytischer Fermente des Serums mittels Enteiweissungsverfahren und Feststellung der Zunahme der mit Ninhydrin reagierenden Stoffe resp. des Stickstoffgehaltes des Filtrates des abgeschiedenen Eiweisses.) E. Abderhalden and Others.
158 Mode of Action of Actinic Rays. (Zur Theorie der Strahlenwirkung insbes. die Latenzzeit.) H. Heineke.
159 Roentgenoscopy of the Liver. F. Meyer-Betz.
160 Standardizing Digitalis Preparations with Frogs. (Methodik der Wertbestimmung von Digitalis-Präparaten am Frosch.) R. Gottlieb.
161 Posterior Cervix Cesarean Section; Seven New Cases. O. Polano.
162 Advantage of Detaching the Costal Pleura as Supplement to Artificial Pneumothorax. (Verbindung von künstlichem Pneumothorax mit Pleurolyse.) F. Jessen.
163 Intraspinal Injection of Salvarsan and Neosalvarsan. (Zur Technik der endolumbalen Salvarsan- und Neosalvarsantherapie.) Gennerich and E. v. Schubert.
164 Fatality after Neosalvarsan. (Todesfall nach Neosalvarsan.) V. L. Neumayer.
165 Multiple Hemorrhages after Injections of Calomel. P. de Favento.
166 Discussion on Diagnosis by the Protective Ferments. (Adsorptionserscheinungen bei dem Abderhaldenschen Dialysierverfahren.) K. Berner.
167 *Treatment of Tuberculosis. (Zur Heilung der Tuberkulose.) Ponndorf. Commenced in No. 14.

167. **Tuberculin Treatment of Tuberculosis** — Ponndorf analyzes the experiences at Weimar with tuberculin treatment in 153 cases of various forms of tuberculosis: 44 were entirely cured; 37 much improved and 28 improved, while the outcome is not known in 12 cases; 13 showed signs of a reaction and the course of treatment was dropped. He mentions parenthetically that 37 of 59 patients under 25 had more or less of a tendency to goiter, and the thyroid returned to normal size in nearly all those who were benefited by the tuberculin treatment. The same treatment was applied to three diabetics without modifying the diet, and the sugar in their urine dropped from 6 to 2 per cent.; from 4.25 to 1.8; and from between 2 and 5 per cent. to zero after one or two sittings. He uses an amplified vaccination technic.

Wiener klinische Wochenschrift, Vienna

April 16, XXVII, No. 16, pp. 453-496

168 Sporadic Acute Anterior Poliomyelitis. (Heine-Medinsche Krankheit.) L. R. v. Korczinski.
169 *Action of Benzol in Leukemia. F. Spiegler.
170 Diplococcus Lanceolatus in Pemphigus Vesicles. Busson, Kirschbaum and Staniek.
171 Advantages of Intranasal Operative Treatment of Maxillary Sinusitis. (Die Grösse der Kieferhöhlenöffnung bei der intranasalen Operationsmethode und ihre Bedeutung für die Behandlung der Kieferhöhleneiterungen.) L. Rethi.
172 Symptomatology of Pellagra. J. Hatiegan and A. Döri.
173 *Treatment of Cholera with Hypertonic Saline Infusion, Tincture of Iodin and Potassium Permanganate. O. Löwy.
174 Alimentary Galactosuria in Liver Disease. R. Fleckseder.

169. **Benzol in Leukemia.**—Spiegler's patient was a woman of 38 with myeloid leukemia. After two months of benzol treatment, she was much improved but returned five months later with extreme anemia, only 1,400 leukocytes, and multiple hemorrhages in skin and mucous membranes. At one count the leukocytes numbered only 400. Necropsy revealed signs of severe toxic injury of the parenchyma of various organs, especially marked in liver and kidneys. There was no manifest change in the spleen, but the granulated elements disappeared from the blood and lymphocytes took their place. Two similar cases have been published in which the leukocytes dropped under benzol from 988,000 to 1,720 and from 56,000 to 5,300 and later to 200. These experiences impress the necessity for vigilant and repeated control of the blood count as indispensable whenever benzol is being given.

173. **Cholera.**—Thirty-one cholera cases are described to emphasize the efficacy of treatment according to Rogers' method, restoring fluid by subcutaneous injection of 1.5 per cent. salt solution and giving the patients a very weak solution of potassium permanganate to drink copiously. Hot tea and black coffee were also given freely and three times a day ten drops of tincture of iodin. Three died of the eighteen patients treated systematically in this way, all very severe cases.

Zentralblatt für Chirurgie, Leipsic

April 18, XLI, No. 16, pp. 673-712

175 *Improved Technic for Removing Hair from Field of Operation on the Head. (Zur Vorbereitung bei Gehirnoperationen.) H. F. O. Haberland.
176 Hernia and Neuralgia after Appendicectomy. W. Mintz.
177 Bimanual Examination of the Prostate. H. F. O. Haberland.

April 25, No. 17, pp. 713-752

178 Postoperative Pseudomenstruation. E. Holländer.
179 Intestine Slips into Loop of Silk Formed as Ligature Loosens Up. (Seltene Form von Strangulation einer Darmschlinge.) R. Vogel.

175. **Preparing for an Operation on the Brain.**—Haberland remarks that shaving the hair preliminary to an operation on the brain is depressing to the patient, tedious for the operator, and liable to cut the skin. He has found that the hair comes off totally and easily in three minutes without the least trouble if barium sulphid (*Barium sulfuratum*) is applied to the region. In three minutes the hair can all be scraped off with a little stick. The only drawback is the odor, but this can be disguised. The hair soon grows out again. He mixes the sulphid with water to a thin paste, with or without addition of a little soap, and applies it with a brush or the hand. After the hairs have been scraped off he rinses and dries the region.

Zentralblatt für Gynäkologie, Leipsic

April 18, XXXVIII, No. 16, pp. 585-616

180 Remarkable Twisted Looping of Umbilical Cord of Twins with Single Amnion. S. Dietrich.
181 Systematic Abstention from Ligating the Umbilical Cord in Normal Cases. (Methode der Nichtunterbindung der Nabelschnur. Ausgeführt bei 10,000 Geburten.) A. N. Rachmanow.

April 25, No. 17, pp. 617-648

182 *Necrobiotic Endometritis from Abnormal Menstruation. L. F. Driessen.
183 Outcome of Serodiagnosis Varies with Functional State of the Ovaries. (Zur Frage der Beziehungen der Abderhaldenschen Reaktion zur Sekretion des Ovariums.) T. A. Solowjew.
184 *Epinephrin Treatment of Osteomalacia. (Die Methode Bossi bei Osteomalakie.) D. Cavarzani.

182. **Necrobiotic Endometritis.**—Driessen says that he has encountered seventy-five cases of a peculiar endometritis which is liable to bring on profuse hemorrhages. He ascribes it to abnormal menstruation; the casting off of the mucosa does not occur as regularly as under normal conditions and necrotic scraps cling in place. Just as scraps left after abortion are liable to set up hemorrhage, so these scraps of mucosa may entail it, and the findings closely resemble those in the endometritis after abortion. He has encountered it in many cases in which the possibility of a pregnancy was out of the question. The women are usually approaching the menopause and the girls are passing through the stress of puberty. The abnormal features of the menstruation are thus easily understood. Curetting may cure completely, but as the process recurs at each menstruation the effect is only temporary. A permanent cure is generally possible only when the ovarian functioning, the remote cause, is either modified or stops completely. Either ovariectomy or roentgenotherapy may be considered for the purpose. The latter seems especially promising in these cases which deceptively suggest malignant disease, both clinically and under the microscope, by the necrosis, hyaline degeneration, proliferation of epithelium, tendency to cyst production and signs of inflammation.

184. **Epinephrin Treatment of Osteomalacia.**—Cavarzani adds another to the forty-six cases on record in which systematic epinephrin treatment cured osteomalacia. At the same time he cites twenty-six cases that have been reported in which little or no benefit was derived from the treatment. In some of these cases the epinephrin was stopped at the first sign of intolerance, so the treatment had really no chance to display any efficacy. The hypophysis seems to be able to sensitize the adrenals, and hence combining hypophysis extract with the epinephrin treatment might enhance the action of the latter, he suggests. He adds that there is much to sustain the assumption that deficient functioning of the adrenals interferes with the normal growth of the skeleton. His observation of the prevalence of rachitis and osteomalacia in regions with certain types of soil and drinking water has convinced him that a deficiency of lime in the food has something to do with their development.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 42-45, pp. 441-472

185 Vaccination against Tuberculosis According to Maragliano's Technic. E. Curti.
186 Diagnostic Local Reaction in Syphilis. (L'intradermoreazione nella sifilide mediante l'estratto di sifiloma scrotale di coniglio.) M. Trossarello.

Policlinico, Rome

April 12, XXI, No. 15, pp. 521-556

187 *Iodized Benzol as Substitute for Tincture of Iodin for Sterilization of the Skin. (Sopra un nuovo tipo di soluzione jodica per il metodo Grossich.) G. Zanetti.

April 1, Medical Section, No. 4, pp. 145-192

188 Pedunculated Tumor of the Liver. N. Trulli.
189 Urochromogen in the Urine merely Sign of Rapid Destruction of Tissue. (La reazione di Moriz-Weisz.) N. Martelli and D. Pizzetti.

187. **Iodin-Benzol for Sterilization of the Skin.**—Zanetti has been testing various substances as vehicle for iodin, to take the place of the tincture which deteriorates so rapidly. He announces that benzol dissolves iodin readily and the solution keeps indefinitely, while the benzol seems to enable the iodin to penetrate deeper into the skin. The saturated benzol solution contains 9.75 per cent. iodin while the tincture represents less than this.

Brazil-Medico, Rio de Janeiro

April 1, XXVIII, No. 13, pp. 123-132

190 Dwarf Growth from Achondroplasia. (A proposito de um caso achondroplasia.) A. Austregesilo and F. Esposel.
191 Aspect of the Normal and Pathologic Bladder. (Notas sobre a cystoscopia.) R. de Buller.

Semana Medica, Buenos Aires

March 19, XXI, No. 12, pp. 637-684

192 Electrocardiography. A. Viton.
193 Primary Sarcoma in Muscle; Three Cases in Children. G. Amunategui.
194 Operative Treatment of Hemorrhoids. J. Denegri.
195 Literature Written by the Mentally Unbalanced. (La literatura de los alienados. Su valor clinico y medico-legal. N. A. Rojas.

Hospitalstidende, Copenhagen

April 15, LVII, No. 15, pp. 449-480

196 *Acute Hemorrhagic Pancreatitis. H. Bindslev.

196. **Acute Hemorrhagic Pancreatitis.**—Bindslev states that he encountered three cases of this affection in a recent six months' period, all in women between 52 and 67, and all fatal. All of them had had pain in the upper abdomen at times, ascribed to gall-stones, and gall-stones were found at the operation in every case. The pains were characteristic, not radiating, with pain-free intervals at first, but the pains increasing and becoming continuous in time, often so intense that even morphin did not relieve. Vomiting generally occurs early and often keeps up with surprising regularity. The collapse and violent pains may suggest perforation, but with perforation of the stomach the tenderness in the region is more intense and the board-like hardness of the abdominal wall differs in every respect from the peculiar meteorism with pancreatitis. The temperature usually runs up higher than with ileus. If there are no signs of thrombosis, endocarditis or phlebitis, pancreatitis seems more plausible than embolism when the signs of shock develop gradually, in the course of a day or so, and the temperature rises only gradually. There was a tendency to arteriosclerosis, obesity and cholelithiasis in the three cases reported, plus endocarditis in one case, but the biliary passages were not obstructed in any instance. The abdomen was opened in each case, but the conditions were found already irreparable.

Ugeskrift for Læger, Copenhagen

April 9, LXXVI, No. 15, pp. 635-680

197 Hypophysis Extracts in Obstetrics. (Hypopfyseekstrakten i Födselshjælpen.) K. A. Esbensen.

April 16, No. 16, pp. 681-726

198 Artificial Fecundation. (Tilfælde af Fecundatio artificialis med positivt Resultat.) V. Ryder.